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COMPUTER GAMING WORLD

The #1 Computer Game Magazine

DECEMBER 1994

HOT Hardware
Video & Sound Cards, Pentiums, and more!

150 Great Gifts For The Holidays

Simulations pg 267

Aces Of The Deep, Microsoft Space Simulator

Adventure pg 185

Dark Sun II, Star Trail, DreamWeb

Action pg 216

Wing Commander III, System Shock

Strategy/War pg 293

Colonization, Master Of Magic

USS TICONDEROGA

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RISE OF THE TRIAD

DARK WAR

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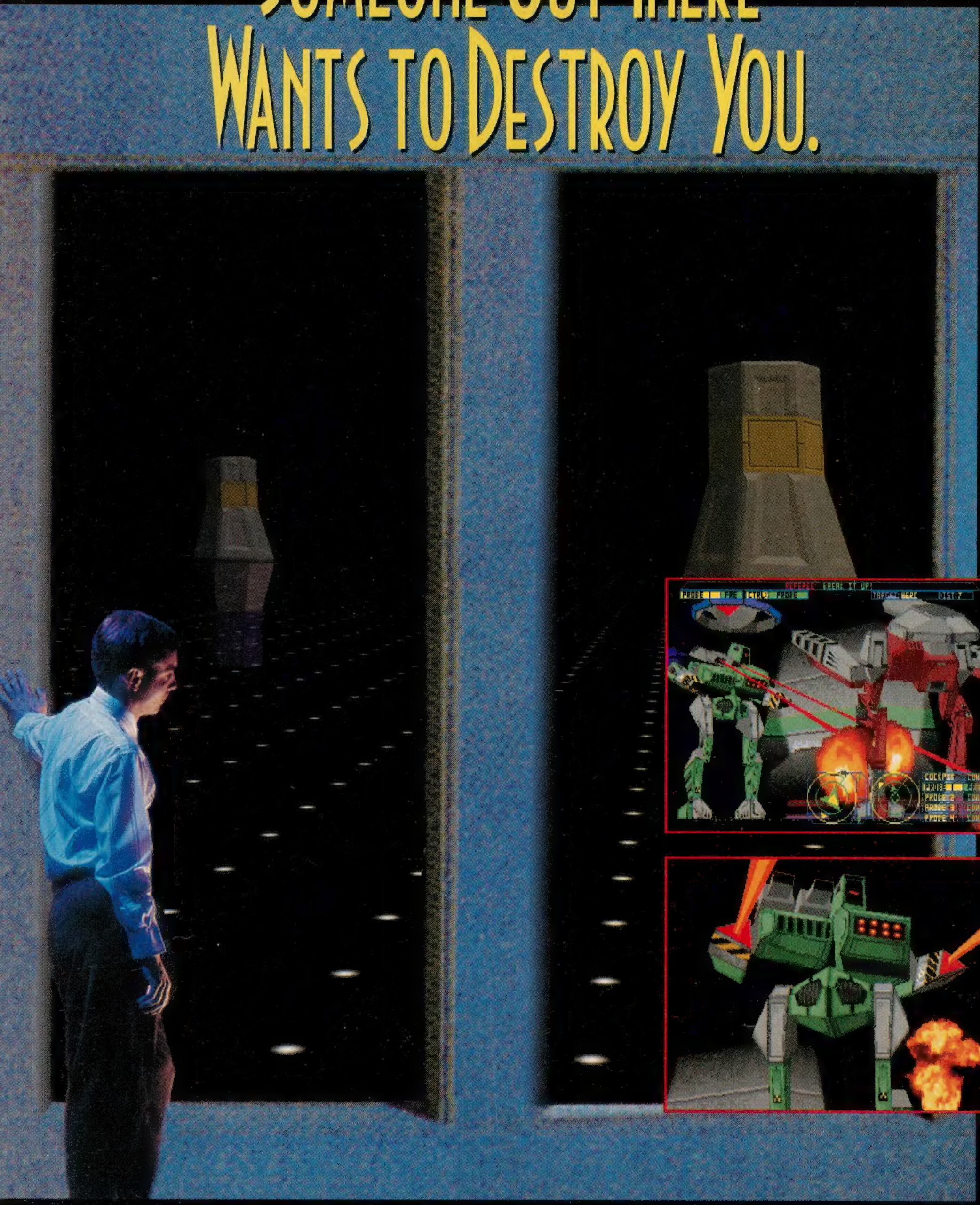
SOMEONE OUT THERE WANTS TO DESTROY YOU.



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YOUR AS*S■■..))) THIS IZ X. ROCKET.))))SCI-ENCE...GAME.1...LOAD-STAR.■■ ■■■DO(((()))U READ.)E.■■ ■.. THIS I() ROCK
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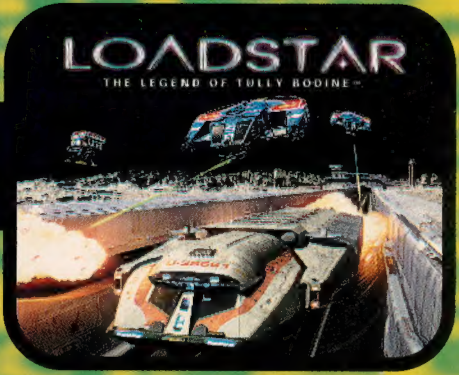
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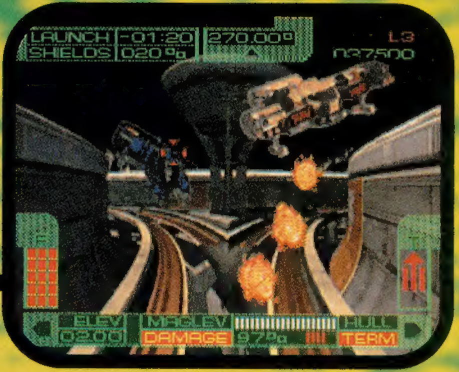
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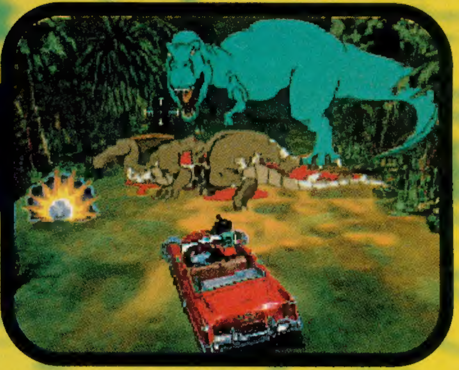

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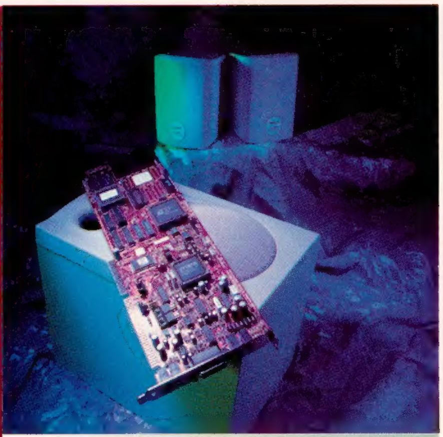
COMPUTER GAMING WORLD
DECEMBER 1994
ISSUE 125

Ultimate Game Machine



Sound Cards 138

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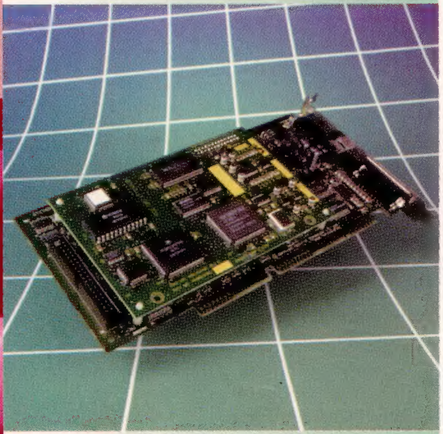

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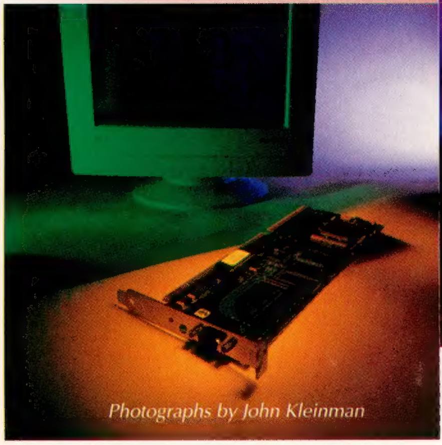
Video Cards 114



Control Devices 166

Photographs by John Kleinman

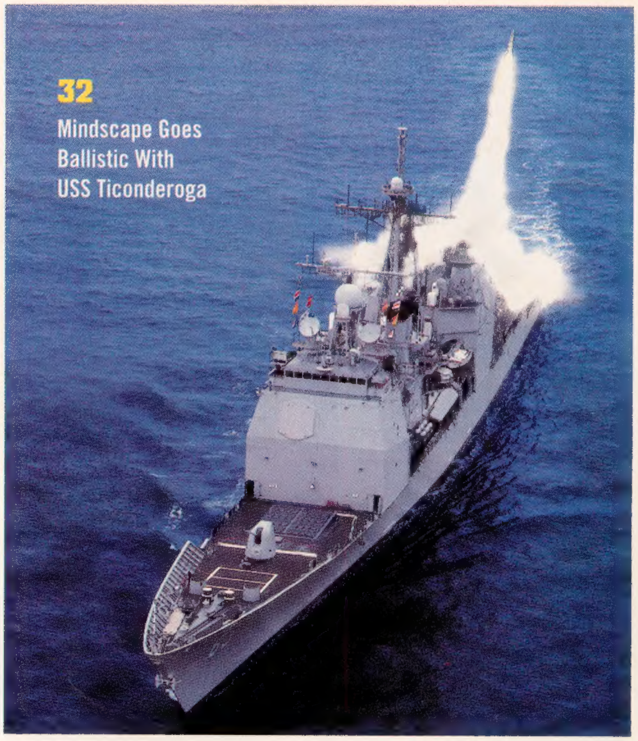
Hardware Solutions Just For Gamers!

Today's games have extremely high performance needs. That's why we assembled the biggest hardware roundup and **EVALUATION** ever printed in a computer gaming publication. To explain the **TECHNOLOGY**, to compare the products, to give practical information about their **PERFORMANCE**, and to show you what's available. We know you can't try out a dozen sound cards, two dozen video cards, and 29 control devices, so we did it for you.

FEATURES

32 CHRISTENING MINDSCAPE'S USS TICONDEROGA *CGW*'s Terry Coleman signs on for a pre-commissioning shakedown cruise aboard **Mindscape**'s upcoming simulation of the enhanced Aegis cruiser. USS Ticonderoga is expected to be the first in a "command simulation" series from British developer, **Intelligent Games,** and the 3-D rendered experience features a shipload of special effects.

36 150+ HOLIDAY GIFT SUGGESTIONS Our editors gathered together every pre-release game they could get their hands on prior to press time. Here are their impressions of games yet to be released and those just-released, so you can prepare a wish list for Santa.



32

Mindscape Goes Ballistic With USS Ticonderoga

ADVENTURE/ ROLE-PLAYING

185 SCORPIA'S STING The countess of computer role-playing returns to her chamber and opens the window on Dark Sun: Wake of the Ravager.

190 SCORPIA'S MAIL This month's tip sheet helps you perform heroics in Hoboken, scroll through problems in Arena, read the palm of fortune's Hand, and turn completely Pagan.

194 STAR TRAIL Petra Schlunk discovers much ado about a Salamander Stone in Star Trail, **Sir-Tech Software**'s sequel to Realms of Arkania: Blade of Destiny.

202 DREAMWEB After Charles Ardai hears voices in his head telling him to commit serial murder, he identifies the dog that made him do it.

208 WOLF Vince DeNardo takes on the alpha male in Wolf, **Sanctuary Woods**' new title for canine connoisseurs and lupine lovers.

216

EAT THIS, FURBALL! Special Sneak Preview Of Wing Commander III!

ACTION

216 PREVIEW! WING COMMANDER III **Origin** hosted a gala press event in New York City for Wing Commander III. Charles Ardai managed to snare the joystick from John Rhys-Davies long enough to report on the result.

220 PREVIEW! MAGIC CARPET Take a magic carpet ride with Swami Ken Brown as he invokes the power of **Bullfrog**'s latest magic.

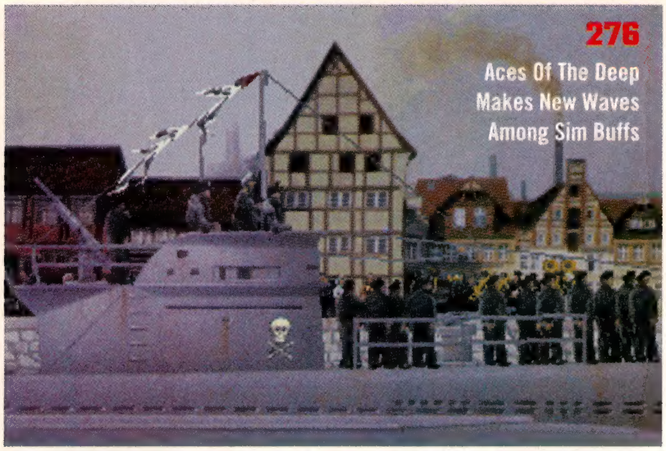
224 QUARANTINE How does **GameTek**'s hellcab tribute to hit and run homicide fare with Mark Clarkson?

230 LITIL DIVIL As the Judith Crist of computer gaming, Charles Ardai torments **Philip**'s Litil Divil.

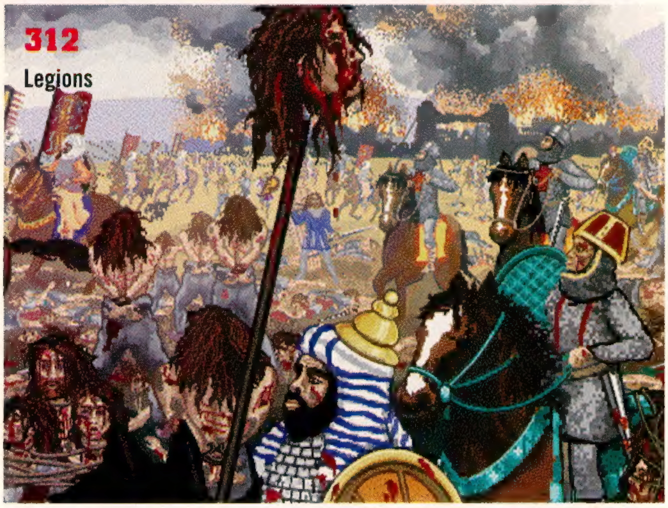
234 WING COMMANDER: ARMADA You can't blame your poor performance on incompetent wingmen anymore. Martin Cirulis examines **Origin**'s attempt to bring multiplayer dogfights into their universe.

Holiday Buyer's Guide 36

HO-HO-HO!
KELLY FREAS 94



276 Aces Of The Deep Makes New Waves Among Sim Buffs



312 Legions

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350 PATCHES Game Files To Kill Bugs Dead

352 THE RUMOR BAG Homo Fiber Opticus

242 CANNON FODDER Jason Kapalka lets loose the lemmings of war in this bloody little arcade game from **Virgin**.

250 SYSTEM SHOCK Ultima Underworld meets William Gibson, as cyber cowboy Paul Schuytema cracks the ICE behind **Looking Glass Technologies**' latest effort.

256 CRYSTAL CALIBURN Merlin's might have had to call upon higher magic to match the technical wizardry in **Starplay Productions**' Arthurian pinball game. Terry Coleman shoots straight and true.

260 NHL HOCKEY 95 According to Gordon Goble, **Electronic Arts** knows how to put a good game on ice.

SIMULATION

267 BOGEY'S BAR & GRILL Sim expert Tom Basham tells readers how to take the crash out of landings.

270 MICROSOFT SPACE SIMULATOR You'll never be "Lost in Space" if you master this edutainment product from Microsoft. Martin Cirulis speaks of planets and rings and many other things.

276 ACES OF THE DEEP Kevin S. Turner dives into this WWII simulation of *Untersee-Boot* action from **Dynamix**.

284 CD ENCYCLOPEDIAS OF FLIGHT Tom Basham explores the Wild Blue Yonder courtesy of **Spectrum HoloByte** and great Warplanes courtesy of **Maris Multimedia**.

STRATEGY/ WARGAMES

293 BROADSIDES & GRIPESHOT When Alan Emrich does Windows, he sees a bright future for wargamers.

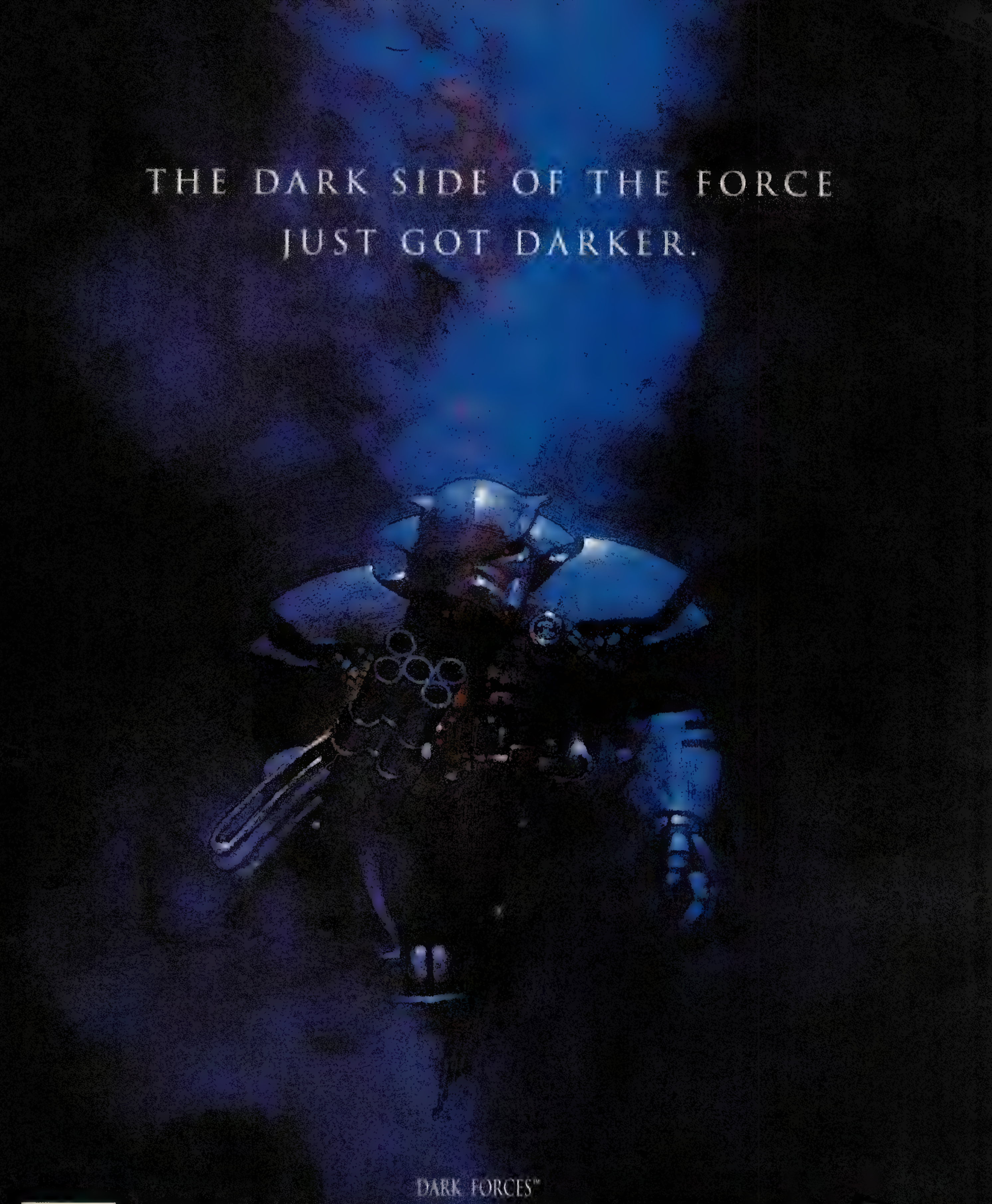
298 MASTER OF MAGIC Robert L. Hayes, Jr.'s tome in praise of Master of Magic makes us wish there was a glyph of warding against crash bugs.

304 SID MEIER'S COLONIZATION The four eXs of strategy games (explore, expand, exploit and exterminate) are still present in Sid Meier's Colonization, but Randall Black suggests that gamers who don't like to micro-manage may say, "Start the revolution without me."

312 PREVIEW! LEGIONS Warfare of the ancients becomes the order of the day as **Mindscape**'s Legions marches across Johnny Wilson's private parade ground.

318 TAC OPS The Macintosh strategy game from Arsenal Publishing is finally deployed, and wargame veteran Bob Proctor takes command.

324 STRATEGY! HARPOON II Admiral Basham explains how to use submarine patrol zones, coordinated attacks, and Tomahawks to scalp the enemy in Harpoon II.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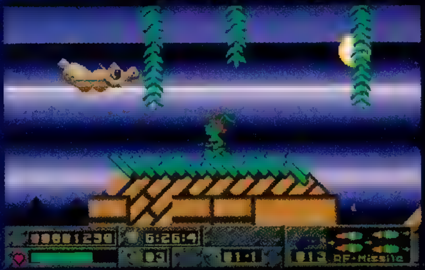

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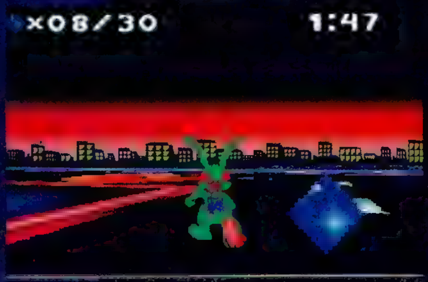

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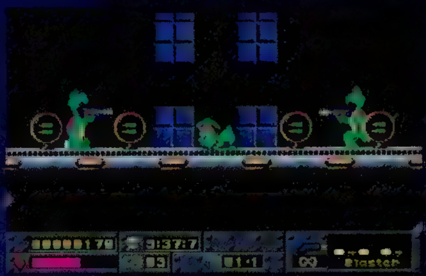
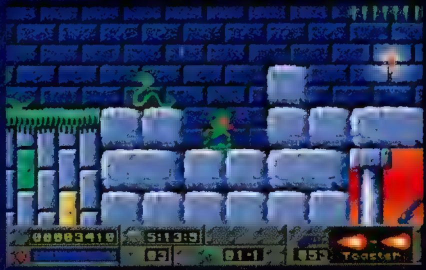


Tons of enemies, power-ups and loot. Secrets galore!



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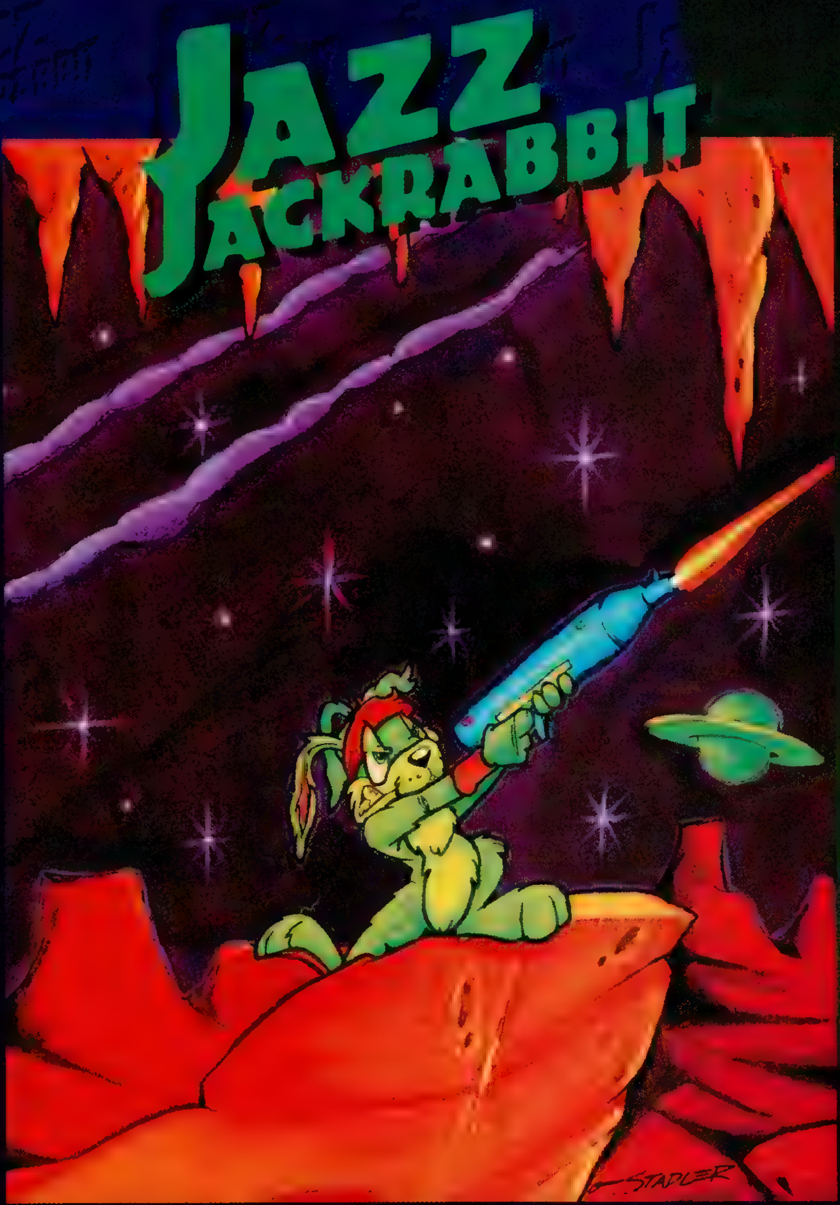

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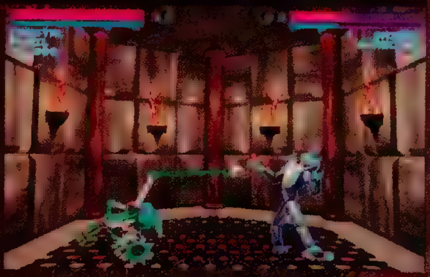

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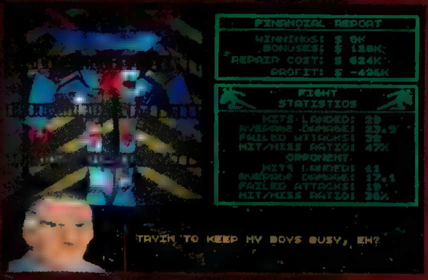
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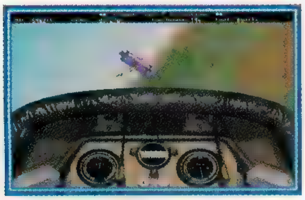

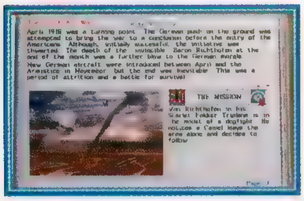

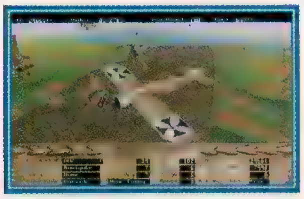

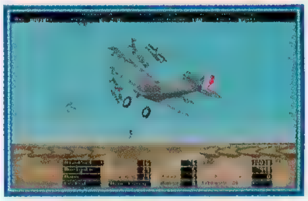

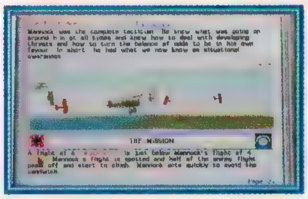

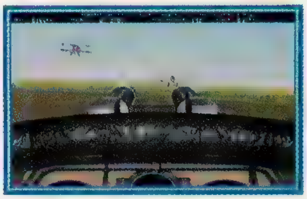

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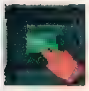
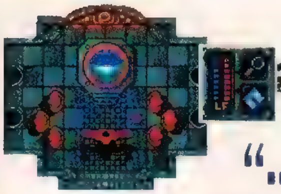
DreamWeb



~~Sunday April~~
Monday April 9
The clock keeps going round.
It wont ~~tect~~ tell me the time.
Santa Claus gave a gun to me.
Let loose the puppies of war.
I died last night



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Rants & Raves

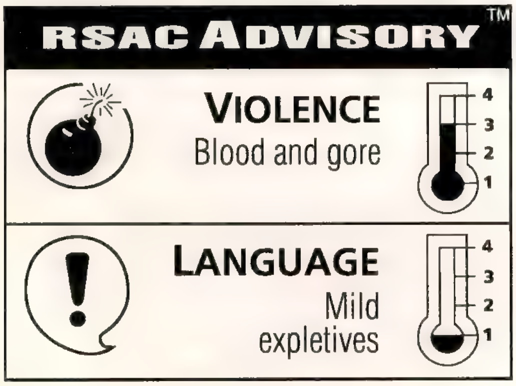
How Do You Rate?

by Johnny L. Wilson

If you've ever seen a film and wondered how it managed to receive a higher rating (G, PG-13, R, NC-17) than you thought it should have or a lower rating than you thought it should have, there is a new ratings scheme that provides the answers. Unfortunately for movie buffs, this new ratings procedure doesn't affect the film medium, but it is good news for computer game players. The new ratings scheme from the **Recreational Software Advisory Council** (**RSAC**) has been launched, and the first ratings labels will begin to appear on store shelves as you read this.

WHAT'S DIFFERENT ABOUT IT?

First of all, the RSAC ratings are objective and content-based. Anyone can determine how a game received its ratings by reviewing a set of basic criteria. The ratings system does not rely on subjective rulings which take place behind closed doors. Game publishers will review their products according to a standardized questionnaire which is administered via custom software. The questionnaire is designed to indicate conformity to certain thresholds in three touchy areas: violence, nudity/sex and language. If there is nothing to trigger any of these thresholds, the game will be rated as appropriate for ALL audiences.



The RSAC Advisory label rates the levels of three potentially objectionable areas of game content.

ALL audiences do not agree on acceptable levels of violence, however. So, whenever a game depicts violence occurring against sentient beings, the ratings software will lead the publisher through a series of questions which will delineate: specific types of violence, types of damage, nature of victims/targets, stance (threatening or non-threatening) of victims, and consequences to the player. The answers to these questions will determine whether a game is given the rating of 1-4 on the Violence thermometer.

At the press conference announcing the specifics of the system (held in Dallas, TX during early October), Doom was rated before dozens of reporters. Although Doom provides plenty of blood and gore for its audience, the violence is never gratuitous. It is always directed at a present and active threat. Therefore, Doom would receive a "3" rating on the Violence thermometer and a short verbal descriptor reading, "Blood and Gore." This allows those who are concerned about graphic gore to avoid the product, while learning the rest to make up their own minds about it. It also assures parents and other concerned gamers that torture and killing of innocent bystanders is not present in the game.

Further, ALL audiences do not agree on acceptable levels of nudity and/or sexual expression. So, the RSAC program leads publishers through a detailed consideration of whether the program has revealing attire, clothed sexual touching, passionate kissing, or more detailed sexual acts.

Since Doom doesn't hit any Nudity/Sex thresholds, no thermometer for this area would appear. Yet, ALL audiences do not agree on the acceptable levels of expletives. Doom does use the word "hell" with expletive intent. As street language goes, this is probably a nominal use of what was once shocking language in our society. So, Doom would get a 1 rating on the "Language" thermometer and a short descriptor reading, "Mild Expletives."

The RSAC system simply and clearly delineates any potentially objectionable material and allows purchasers to make up their own minds with regard to suitability. The icons on the ratings labels will be large enough for purchasers to see at a glance and should allow for freedom of expression for both gamers and software publishers.

Secondly, the ratings are not age-based. An age-based system attempts to put everyone's maturity on the same scale as though we all reached different thresholds of tolerability and perception at the same age. Further, an age-based system implies that many phrases, situations and activities that are abhorrent to some purchasers are actually sophisticated approaches and attitudes that should be cultivated by the more mature gamer. This is patronizing and begs the question. Different people of widely disparate ages have different perceptions of what is appropriate.

Thirdly, the ratings are administered by an independent organization. This organization is not under the control of the SPA or any other trade organization. A separate governing body will oversee the accuracy of the questionnaires through reviews, rulings, appeals and random audits. Though the questionnaire system does not require the bureaucracy of an MPAA (the film industry's rating organization), the Comics Code Authority or another game ratings association, it is designed to check up on assertions and assess penalties when the ratings system is abused. The system keeps costs down by limiting the amount of bureaucracy necessary.

WILL THE RSAC APPROACH WORK?

Right now, the RSAC approach looks like it will satisfy two needs: implementation of consumer awareness and avoidance of governmental intervention. To succeed at either task will require voluntary compliance

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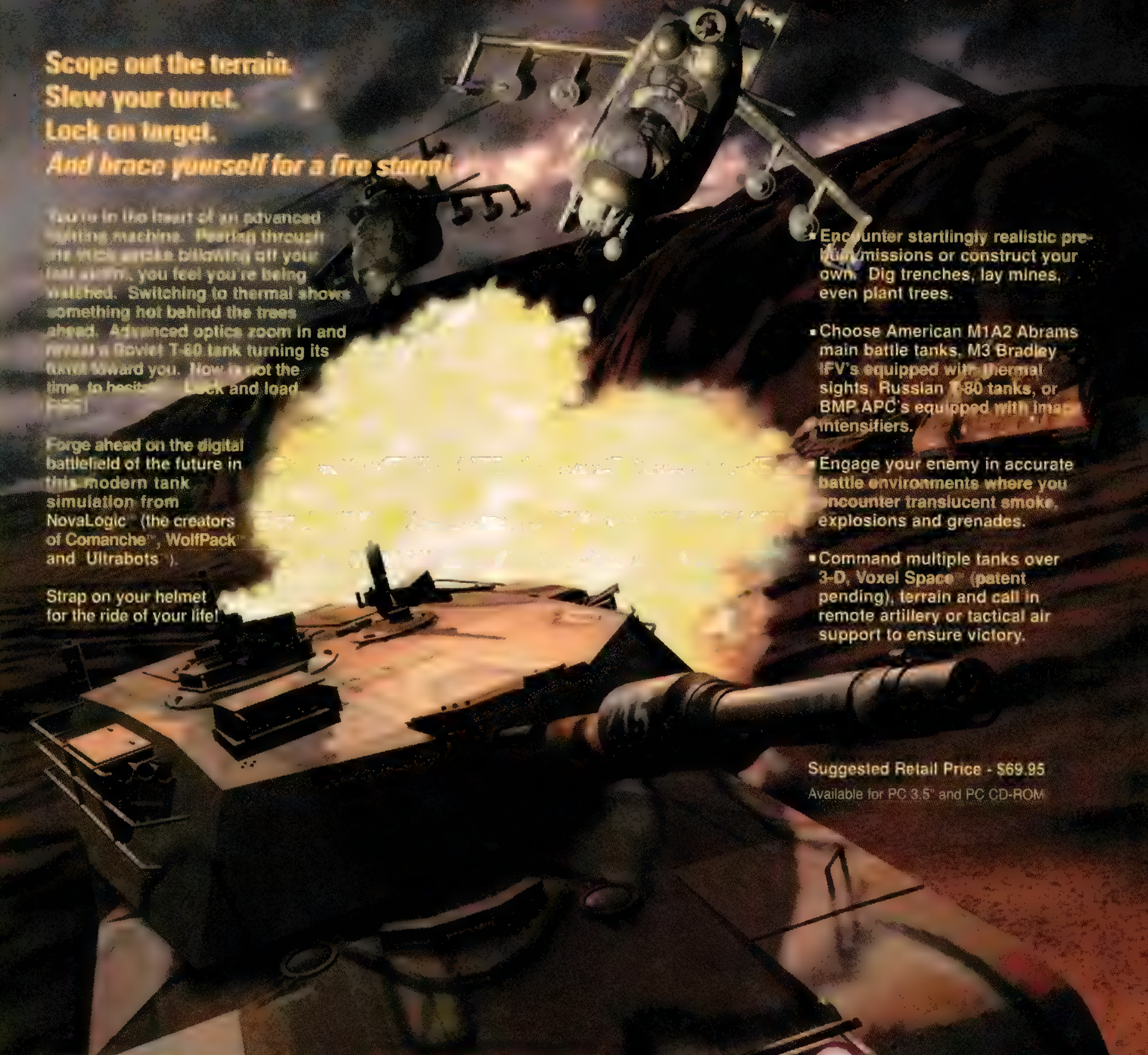

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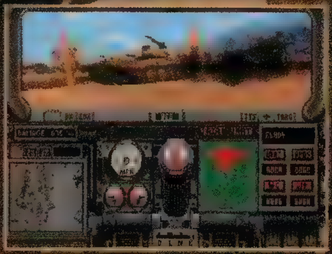

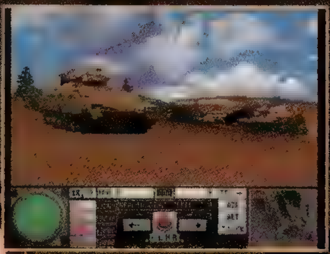

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from as many software publishers as possible. The more packages that appear on shelves with RSAC labels during the holiday buying season, the more consumers will learn about the ratings system through the comparison of similar products. As consumers become more and more familiar with the system, we believe they will become more and more confident about its value.

An inadequate number of labels on the shelves during the holiday season could provide an excuse for further governmental interference. If a voluntary system doesn't work, the government will step in.

WHAT IS CGW'S POSITION?

Computer Gaming World will begin publishing the RSAC icons and descriptors in the reviews of rated games as they appear. We believe that this is useful information for our readers and hope that it will encourage compliance with the RSAC approach from all game publishers. We realize that this is likely to be an unattainable ideal, but we urge all game publishers to consider the RSAC ratings approach.

The beauty of the RSAC system is that it is non-judgmental. Many of our readers have expressed concern during the year-long ratings controversy, which followed the Senate subcommittee hearings held prior to last Christmas, that the imposition of ratings will prompt software publishers to precensor their products and reduce the amount of human interaction or expression which could be portrayed in computer games. To that, we suggest that all ratings systems tend to gravitate to an undistributed middle. For example, the bulk of movies are PG, PG-13 and R because those are the films that most people attend. Unless a film has something extra, a G rating or X rating, even an NC-17 rating hurts it. The RSAC ratings may suffer some from this tendency, but they feel this is less restrictive than other approaches, particularly those approaches that might come out of Capitol Hill.

HOW DO WE RATE?

The Guide To CGW's Review Rating System

★★★★★ Outstanding: That rare game that gets it all right. The graphics, sound, interface, and, of course, the game play come together to form a Transcendent Gaming Experience.

★★★★ Very Good: A quality game that succeeds in many areas. May have minor problems, but is still worth your time and money, especially if you're interested in the subject matter/genre.

★★★ Average: A mixed bag. Can often be a game that reaches for the stars, but falls short in significant areas. Can also just be a game that does what it does well, but lacks flair or originality.

★★ Weak: A game with serious problems. May be buggy, may not have much play value, may be ill-conceived—and you may want to think twice about buying it.

★ Abysmal: That rare game that gets it all wrong. Usually a buggy, incomplete, and/or valueless product.

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The #1 Computer Game Magazine

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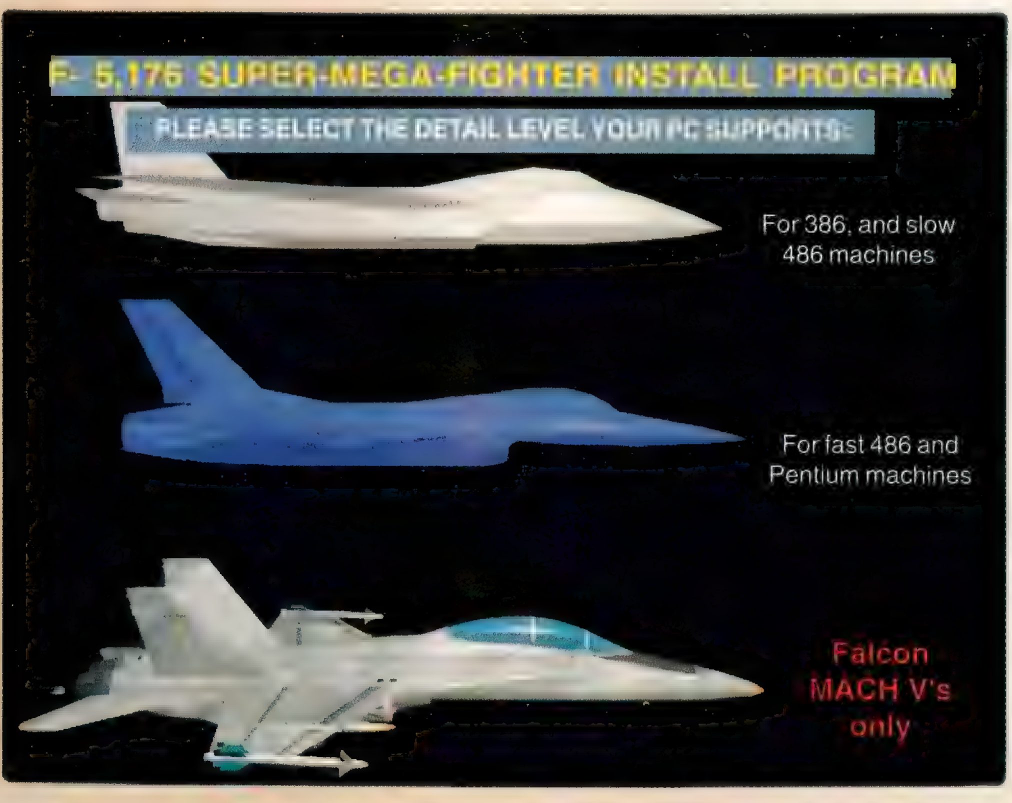
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LETTERS FROM CGW READERS

ROLE-PLAYING WISHES, DRAMAMINE DREAMS

After reading about the latest game designs at CES, I am quite dismayed about one certain trend. I have been a loyal, rabid CRPG player since Ultima II. I buy many computer games a year in several genres, but mainly RPGs. My concern is the proliferation of 3D scrolling games, games which fall into the Doom or Ultima Underworld/Arena category. There are many of us out there who literally cannot play these games due to motion sickness. Many of us who will not buy the future RPGs which are adopting that form of first-person interface. I was horrified to read that Might and Magic is switching to this format, along with Realms of Arkania, etc. I know that this new scrolling technology is very impressive and very immersive for a large number of players, but as the computer gaming industry strives to broaden their audience through gee-whiz technology, keep in mind those of us who can't physically handle that technology. Correct me if I'm mistaken, but I believe it was Ravenloft which allowed for players to choose step-by-step movement or the smooth-scrolling movement. I hope that New World Computing and Sir-Tech will consider giving players that option.

Keep up the great work with the magazine!

Adam Mayo
Winnipeg, Manitoba, Canada

Free-scrolling, 3D games are certainly the craze in game design these days. In addition to the legions of first-person action games coming out, it appears that almost every major publisher of role-playing games is making the move to first person, free-scrolling action. We've received several letters from people like yourself, who either cannot stomach the 3D experience or who prefer the "discrete step" model of old, but the majority of gamers seem to like the free-scrolling model, so it's likely that we'll continue to see more. Perhaps the dual control modes offered in Ravenloft (yes, you were correct) are the way for publishers to go, allowing lovers of 3D to slew around to their hearts' content, while enabling the less staunch of stomach to toss their fireballs without tossing their cookies.

MULTIPLAYER MALAISE

Here in the UK, October 1994 has come around...so what's new in the multiplayer strategy market? Well, the popular games of today tend to be the Perfect General, Battle Isle, and Warlords clones which are mainly turn-based, single computer affairs whose roots go back to the late '80s. Doom has become justifiably popular recently because, being networkable, it offers a real-time opportunity for players to go one on one in a battle of skill. It's a great game, but it's currently without a stablemate in the strategy and war-game market.

The software companies continue their barrage of solitaire games with their inevitably predictable and beatable AIs. Full support for multiplay has rarely been considered, and when it has, it's been painfully turn-based.

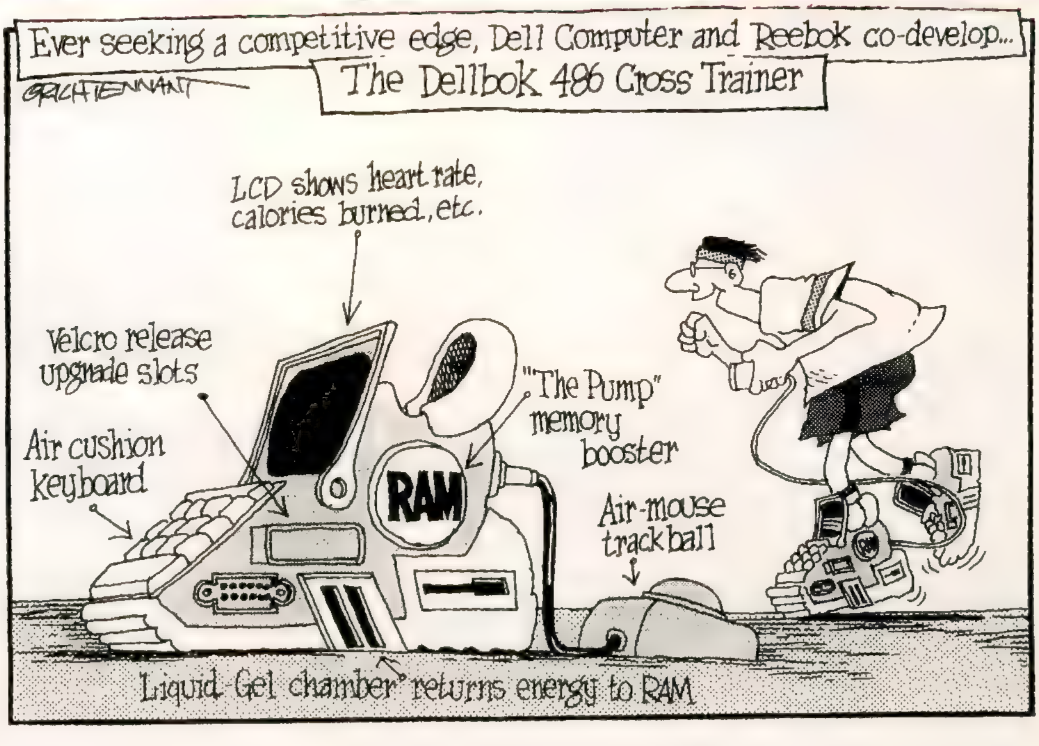
So, in October, 1994, Sid Meier's Colonization is released, the long-awaited sequel to the excellent Civilization. MicroProse, in ignoring the letters of thousands of people (including mine) pleading for a network multiplayer option, has missed an opportunity to pass a computer gaming milestone. Let's hope that Civil War, Battle Isle 2200, or Iron Cross can deliver us from 1990 and give us real network/serial options as standard.

There is no alternative for two fast PCs, two network cards, and two human beings.

Iain Garner
Rochdale, Lancs., UK

Multiplayer options are becoming increasingly common in the gaming world, but they will probably not become a "standard" any time soon. The problem is that multi-

The 5th Wave **By Rich Tennant**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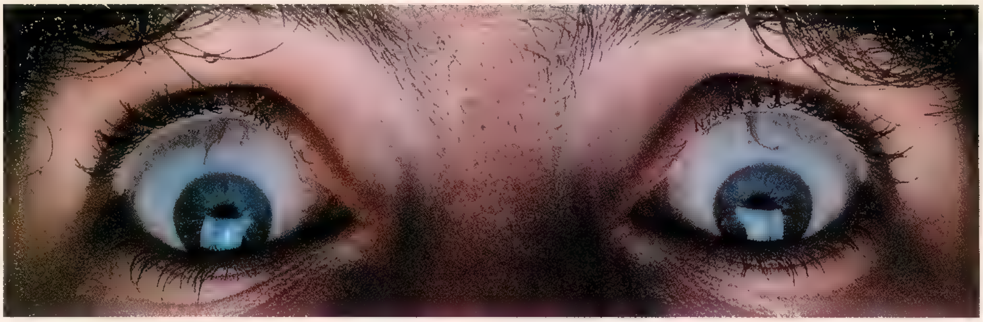

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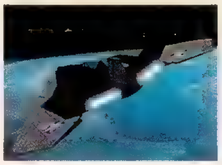

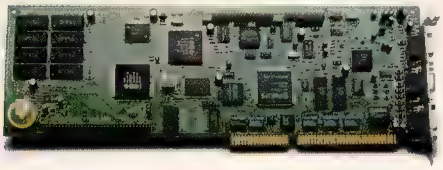

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player play, particularly network play, is still seen as a niche concern. The number of players who play games by modem or network is small, and many companies do not feel that the addition of multiplayer options increases sales enough to justify the added programming expense. Fortunately, there are exceptions, and more so as time goes on. Stay tuned until next month when we round up and compare networkable games.

By the way, BATTLE ISLE 2200 will support network play; New World's IRON CROSS does not, although New World's SPACEWARD HO! 4.0 and ZEPHYR will.

PACKAGES BY PICASSO

This is a letter to all software publishers.

I'm fed up. Buying a game used to be simple, go to the store, look at the shelf, and there it was! Sitting there, nested in its own little section, arranged by genre and the alphabet. But things have changed. It's almost impossible to find a game these days without asking a 15-year-old twit where it is located in that 16.8 million color blur (shelf). Octagonal, hexagonal, cubical boxes glossy beyond belief? I don't think so. What's next? Multi-Media packaging? I can see the ads: "The graphics bite, there is no gameplay, but hey! Who needs all that when you can experience the thrill of Mr. Superstar stating the title over and over again in FMV! All on the box!" If you want to make a difference, than instead of sticking two 3.5 inch floppies in a life-size cardboard cutout of Super-Duper Squirrel, try conserving our environment (and save your money) by being REALLY original. For example, when was the last time you saw a CD game that was actually packaged like a CD? Even Sega has caught on, I own a Genesis system and, even though I don't play them anymore, I never had a problem with storing the games. I buy the game, tear off the shrink wrap, and that's it! No unrecyclable cardboard to throw away, and especially none of that feeling that in twenty years the only forest will be the hedge in your backyard. One more thing, prices would drop too. Instead of hiring Picasso to design the box all you would have to do is stick the name of the game onto the STANDARDIZED game box and save thousands in design costs. That's all I have to say for now, but in the era of conservation and Earth Day the game developers should be at the head of the pack leading us into a cleaner environment, not wasting five trees on each box.

Sebastian Szyszka
Glendale Heights, IL

Thanks, Sebastian. You just saved us the trouble of yet another editorial on standardization, and the standardization of game packaging in particular. Not only do oversized and bizarre boxes make the lives of retail clerks a living hell, but they reduce the space available for other games on a shelf (thus, limiting our buying options), they often fall apart and are useless once opened (making a mess of our own game shelves at home), they are very wasteful, and they add to the cost of goods, which, of course, is passed on to gamers in higher prices. The good news is that members of the Software Publishers Association appear to have made some headway in standardization on system requirements, and they are still working to form a consensus on packaging standards (see the SPA article in this month's READ.ME).

I WANT MY MECH PC!

Hurry up Activision! My poor friend is clutching his FASA manual and chanting this mantra over and over again: "MECHWARRIOR II is coming... MECHWARRIOR II is coming!" If it's not out by Christmas, he'll need therapy!

As for me, hearty helpings of TIE FIGHTER provide a potent stopgap. But a TIE Defender is no substitute for a Mad Cat! MECHWARRIOR II must come...and it had better be good!

Tom Price
Miami, FL

Well, Tom, your friend had better start looking for a therapist. The word from Activision is that the MECHWARRIOR II project is nowhere near completion, and that they have recently fired their project leader. It looks like it might be late '95 before you drive a Mad Cat, if ever.

STRAT-O-MATIC SCUFFLE

I am writing to correct a number of factual errors in the review of our STRAT-O-MATIC COMPUTER BASEBALL game *[CGW #121, August, 94]*. Reviews are based on facts and opinions. As a game developer you must live with the reviewer's opinion, even if he totally overlooks key elements of your game that help set it apart from the competition. However, factual errors cannot be ignored, especially when they constitute a major portion of the review.

The reviewer, Mr. Gindin, claims that "a lousy shortstop is just as valuable to Maddux (a pitcher) as a top-notch shortstop." This is a gross error on his part, as almost anyone who has played our game can tell you. The fact is that fielding in STRAT-O-MATIC is a key component of the game, no matter who is on the mound.

He also states that our game "lacks the rare plays that have endeared fans to some of its competitors' products." The fact is that our game includes nearly a hundred different play by play descriptions of rare plays. Rare plays occur every few games, so I do not understand how this could be overlooked.

Mr. Gindin's claim that our product has "fallen behind its top competitors in providing accuracy in replay" is his most glaring error. To bolster this contention he includes statements like "Bond's home run production is higher than it should be because the best pitchers are lowered to a common denominator," and "Dave Kingman would look like a Gold-Glover in the spacious Astrodome." These, along with other equally ridiculous comments, provide solid proof that he does not understand the mechanisms of our statistical model.

Perhaps if the reviewer were familiar with discussions on any number of interactive services, he would see that a majority of gamers feel our game is the most statistically accurate on the market. There's a good reason for that—we have run season replays with every major baseball simulation, and our game is the most accurate at both macro and micro levels. It is a shame that your reviewer did not bother to undertake the same exercise.

We are naturally upset that the review was printed with these factual inaccuracies. However, we thank the editors for allowing us to set the record straight.

Bob Winberry
Strat-O-Matic Game Company

Jim Gindin responds:

I understand it must be difficult for Mr. Winberry to read criticisms of his game's statistical model. However, I stand behind my analysis in the August review.

STRAT-O-MATIC is a quality product. I enjoyed testing the game. In fact, I prefer it to any baseball simulation I've ever played. This doesn't mean the game is free from statistical problems. In particular, the STRAT-O-

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Matic model has trouble with home runs and defense.

My analysis is based on a statement in the game's manual indicating "(the game) works in concert with the Strat-O-Matic player cards. The software replaces the board game charts, rules and dice (page 6)." Therefore, I analyzed the board game because a break down of each die roll is much more exact than trying to reverse-engineer game details from simulated season statistics.

I apologize for the one mistake I did make in the review. There are rare plays. These don't exist in the board game, and I didn't see any in the many head-to-head test games I played. Of course, if they occurred in every game, they wouldn't be rare.

Mr. Winberry objects to my claim that a ground-ball pitcher such as Greg Maddux gains the same additional benefit from having a shortstop with poor range as he gains from a shortstop with excellent range. He also disagrees with my assessment that an outfielder with poor range, like Dave Kingman, can perform at a top level in a ballpark that yields few home runs.

Both problems relate to fundamental flaws in the Strat-O-Matic defensive model. A fielder's ranger only applies when looking at the specific 14 percent of play results that involve a look at the "X" chart. These plays occur with the same distribution on every pitcher's card. Maddux has more ground balls on his card than most pitchers. His shortstop will make more plays. The number of "X" plays to the shortstop, however, is the same for Maddux as it is for a fly-ball pitcher like Bryan Harvey.

The difference between a poor shortstop and an excellent one is one hit every 103 plays. This means about ten fewer hits over a full season for a pitcher like Maddux. It also leads to ten fewer hits against a fly-ball pitcher over 250 innings. A lousy shortstop converts all the extra ground balls on Maddux' card. Maddux gets that bonus for every shortstop in the league. This, to me, is a design flaw.

[Mr. Gindin continues on at length to address the "Kingman Fielding Factor" through an analysis of the Strat-O-Matic cards.]

Mr. Winberry also complained about my comment that top home run hitters such as Barry Bonds see increased home run production because even pitchers who give up very few home runs give up a certain percentage to Bonds. This is because most of Bonds' home runs occur on his own hitting card. There's no room to simulate pitchers who don't allow a lot of home runs. Bonds hit home runs in 6.9 percent of his plate appearances in 1993 (7.5 percent against right-handers).

When analyzing the Strat-O-Matic cards, using a neutral park factor, Bonds hits homers in 8.2 percent of his plate appearances against Jose Rijo, who is better than average at preventing home runs. Only 1.1 percent of the results on Rijo's card for left-handed batters are home runs. You have to look at a pitcher like Mark Portugal, who doesn't allow any pitcher any pitcher-card homers to lefties, before you find a matchup resulting in Bonds hitting home runs at a 7.7-percent rate. Portugal was the second-stingiest pitcher in the league last season. Now, put Bonds against Bobby Ayala, who allowed home runs at about twice the National League average in 1993. According to the Strat-O-Matic model, Bonds hits home runs in 9.3 percent of his appearances.

Strat-O-Matic simulates home runs primarily through the hitters' cards for top home-run hitters and primarily through the pitchers' cards for below average power hitters. As a result, Bonds gets his normal production against even the best pitchers, and he gets slightly above normal production against weaker pitchers like Ayala. This means Bonds will consistently hit more home runs than real life in season simulations. My season simulations bear this hypothesis out.

Finally, Mr. Winberry refers to public discussion of baseball simulations. I am familiar with Internet news group discussions of the games in this genre. People think highly of Strat-O-Matic, as I do, but there is absolutely no consensus as to which simulation is most accurate. It is my opinion that because Strat-O-Matic adheres to the board game batter-pitcher relationship, accuracy suffers.

I thank CGW for giving me the opportunity to respond to Mr. Winberry's letter. Factual accuracy is very important to me. I hope that he can take the time to review the details in my analysis and understand why I made those criticisms.

Jim Gindin
CGW Reviewer
Woodinville, WA

DEBUNKED CONSPIRACY

I would like to take this opportunity to respond to a letter that was sent to you by Robert Rusick of Rochester, NY regarding Myst MPC. *[CGW #121, August, 94]*

Mr. Rusick reported some anomalies that he discovered in the MPC version of the program. Specifically, that the torn page clue regarding the marker switches on Myst Island was an incorrect clue. This clue was incorrect in the initial release of the program. This was an unfortunate oversight, but by no means an intentional one. The version 1.0.1 update, which was released roughly a month after the original version shipped, fixed this problem entirely. The standard response from our technical support representatives about the market switches is that the incorrect torn page was an error, and if the customer will provide their name, address and proof of purchase, the update (an entirely new CD) will be sent out free of charge.

The second anomaly he reported was that the red square button in the Stoneship Age is invisible. It is by no means invisible in either release 1.0 or release 1.0.1 of the MPC version of the program. Admittedly, it is a lighter hue than in the Macintosh version, but this has to do with color palette differences between the Macintosh and MPC platforms. It certainly was not a happy Mac partisan thumbing his nose at PC users.

We appreciate the opportunity to give our explanation. Thank you for letting us respond in this forum to the original letter.

Matt O'Hara
Product Manager
Broderbund Software, Inc.

DEPT. OF CORRECTIONS DEPT.

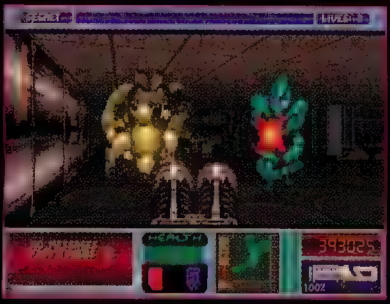
*The phone number for **Imagination** listed in October's "Baudy Tales From The Cyburbs" article was incorrect. The correct number is (800) IMAGIN1, or (800) 462-4461.*

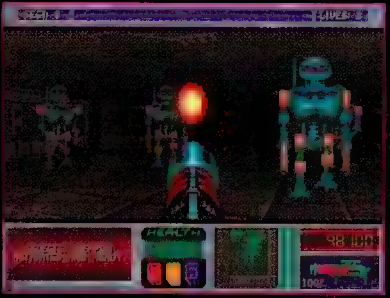
*In Tom Basham's August "Bogey's Bar & Grill," he discussed realism and computer simulations. In illustrating one of his points, he compared **Papyrus'** IndyCar Racing and **MicroProse's** World Circuit, stating that World Circuit was less realistic because one could not drive the car in the wrong direction, and because it did not model spins realistically. As many of you have written to tell us, this is incorrect. World Circuit does model spins and one can drive in the "improper" direction. Tom Basham had played the game with driving aides that disabled these features. His and our apologies to MicroProse and the World Circuit design team.*

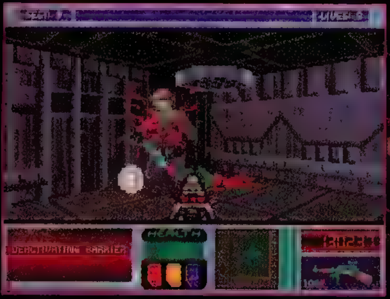
Send your letters to the editor to: CGW—INTERFACE, 130 Chaparral Court, Suite 260, Anaheim Hills, CA 92808. If submitting your letter by e-mail, please place "Letter to Editor" in the subject line of your message.

New!

Blake Stone: Planet Strike!







"... tops the original Wolfenstein™..."
— PC Review

Features

- ✓ 20 thrilling new levels!
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- ✓ Auto-mapper that helps you move through levels!
- ✓ Heart-stopping hazards!
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- ✓ Awesome weapons arsenal!
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Powered by an advanced, fast version of the 3D engine originally used in *Wolfenstein 3D*™, this game has the fast, fluid graphics you love and ultra-realism that will keep you spellbound!

The reviewers are already in orbit over *Blake Stone*:

"Did you like Wolfenstein 3-D"? If you did, you'll love Blake Stone." –PCM Magazine

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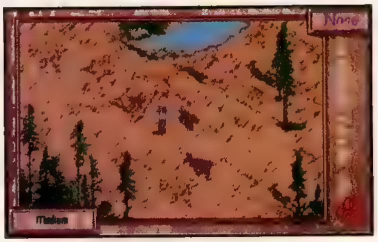
You are such an animal.



"It's addictive." PC Gamer

Wolf photo: copyright held by Wolf Haven International: Jerry Roberts Photography. © 1994 Sanctuary Woods Multimedia, Inc. All rights reserved. The I-entertainme

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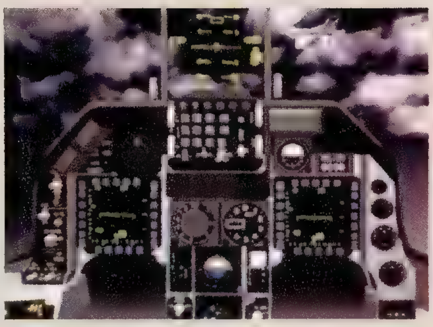
THE LATEST NEWS FROM THE GAMING WORLD

Falcon 4.0's Wings Take Shape

Realism, Digitized Video Take A Front Seat In Spectrum HoloByte's Next Generation Flight Sim

Construction of the next generation Falcon flight sim is proceeding apace at **Spectrum HoloByte**'s Alameda, CA skunkworks. Those eager to join a FALCON 4.0 squadron will be pleased to learn that they won't be charged with leading each mission, as in FALCON 3.0. New recruits will have the option of being assigned to a squadron as a newbie, allowing them to fly on the wing of an experienced flight leader and learn the ropes for a while.



ONE HOT SEAT FALCON 4.0 boasts stunning next-generation graphics and a new F-16C cockpit layout with two multi-function displays.

For more experienced players, it is also possible to start off with a higher rank. Additionally, flying in FALCON 4.0 will utilize a single comprehensive flight model that can be "de-tuned," or simplified for less experienced computer fighter jocks.

The prototype we saw in Spectrum's hangar used real digitized video footage of actors interacting with the player for the actual interface, like a military base version of THE SEVENTH GUEST. No hardware was required to play the full-motion video.

On the campaign side, FALCON 4.0 is shaping up like a battalion-level board game. For realism, the clock will never stop during the campaign. Realism is such an important objective that details like troop movement speed will depend on ground terrain. Players will deal with real world mission planning, including the use of "fragged" orders, and planning such things as "time over target" will be essential.

Some of the key objectives of FALCON 4 will be a 460x480 cockpit which, in prototype stage, was beautifully rendered. Spectrum engineers were working on different terrain techniques, some of which were fractal based, while others utilized texture mapping. Objects like aircraft were done in high-res and have interesting attributes like translucent canopies.

One issue which remains unresolved is whether FALCON 4.0 will be a Windows 95-only product. So, in addition to creating complex algorithms for flight dynamics and wind tunnel testing the virtual airframe, the skunkworks wizards also have to take into account another important wind: which way the OS market will blow.

— M. Weksler

TALES FROM THE CYBURBS

CyberStrike Gets Heavy-Duty Overhaul, Santa's Gunnin' For DOOMers On ZiffNet

Last year's *CGW* Online Game of the Year has been revamped and updated with new, more realistic features. The new CYBERSTRIKE has a host of new features, including quicker startup times and more strategy variations. The giant robotic "CyberPod" each player controls will now have weight. As players equip their CyberPods with a variety of modules to increase their lethality, the CyberPod begins to reflect the added weight and move more sluggishly. **Simutronics** CEO and CYBERSTRIKE designer David Whatley says, "Having fast, light pods, and heavily armored and weaponed ones in the same city makes battles much more dynamic. The range of tactical possibilities are much broader than before."

Holiday Grinches take note: there's a not-so-jolly Santa Claus waiting for you on-line. The big, fat SANTA.WAD is looking for some DOOM II action, and if you go into the Computer Gaming Forum on ZiffNet (GO GAMEWORLD, Library 7, Shareware Sizzle), he'll be happy to drop down your virtual chimney. ZiffNet's looking for your ideas on a ZiffNet custom utility. If they use your winning suggestion, you could win a CD-ROM player and online fame. GO PBSUTILS, Library 8, Ziff Exclusive Util.

Finally, if you'd like to have an electronic copy of those benchmark spreadsheets in our "Ultimate Game Machine" hardware roundup this month, head to the same place: the Computer Gaming Forum on ZiffNet. It's where gamers meet when they aren't exploring, expanding and exterminating.

Ten Games For The Price Of One

EA Packs Their Backlist Onto One $40 CD

Want to buy a gift for a gaming friend, but are unsure of their gaming tastes? Electronic Arts may have the answer to your shopping quandary in their newly released shovelware "paks."

The premium title in this value line is the Top Ten Pak, a collection of widely disparate programs on CD, including Kasparov's Gambit, Grand Slam Bridge II, Chuck Yeager's Air Combat, Indianapolis 500, PGA Tour Golf, Wing Commander II, Ultrabots, Financial Workshop, Ultima VII, and Seal Team—all for around $40. With a collection of titles that spans the spectrum of gaming, and includes two *CGW* Hall of Fame games (Indy 500 and Wing Commander II), you really can't miss.

Other "paks" in the line include the Fantasy Pak (Ultima VII, The Lost Files of Sherlock Holmes, Seven Cities of Gold, and Starflight 2), the Entertainment Pak (Kasparov's Gambit, Hong Kong Mahjong Pro, Rampart, Grand Slam Bridge II), the Simulation Pak (Chuck Yeager's Air Combat, Indianapolis 500, Ultrabots, Seal Team), and the Sports Pak (World Tour Tennis, PGA Tour Golf, Jordan in Flight, Indianapolis 500). EA expects that these smaller "paks" will retail for around $20 each.

While many of these games have fallen out of the memory of gamers by now (and some for good reason), there are many gems to be found here. For the gamer new to the hobby, these packages would be a cheap way to build up a library of games in a hurry.

For orders or information, call EA Direct at (800) 245-4525.

PLAYING LATELY?

Here are the titles that gamers are spending the most "quality time" with. Let us know which game you've been playing lately by writing the name of your current addiction in the "Playing Lately?" section of the *CGW* Top 100 poll card facing page 177.

Readers' TOP 10

Results for *CGW* #123, October 1994

1. **X-COM: UFO Defense** (MicroProse)
2. **TIE Fighter** (LucasArts)
3. **Doom** (id Software)
4. **Master of Orion** (MicroProse)
5. **Doom II** (id Software)
6. **Front Page Sports Baseball** (Dynamix)
7. **The Elder Scrolls: Arena** (Bethesda)
8. **Front Page Sports Football Pro** (Dynamix)
9. **Warlords II Scenario Builder** (SSG)
10. **Operation Crusader** (Avalon Hill)

Notable Quotes

Wit, wisdom and caustic quips from gaming's harshest critics

"With Doom and X-COM, who has time for college?"

S. Allesandro, Parma OH

"At least the strike didn't affect my world series!"

Steve Eason, St. Mary's, GA

"My friends say I have a $2000 nintendo, but they haven't tried Tie Fighter or Falcon 3.0 to experience the thrill—especially with stereo headphones on!"

Adam Brookes, Miami, FL

"Cheers to LucasArts for opting to push aside the glitzy graphics and give Tie Fighter something the public really wants: solid, fun game play."

Evan Keller, Lawrence, KS

"Send an X-COM squad to the cave Outpost came out of and set them loose."

Reina Ko, Copperas Cove, TX

"I can see it now: carpal tunnel syndrome triples in business environments since the release of Doom II. I know my hands hurt!"

Daniel Gowans, Salt Lake City, UT

Mindscape Acquires SSI

Product Development To Target Simulation and Strategy

Mindscape has taken some bold steps to show it is serious about its entertainment line. The company has acquired pioneer game publisher **Strategic Simulations, Inc**., and has changed its name from **The Software Toolworks** to Mindscape, which was a separate entertainment software publisher prior to being acquired by Software Toolworks in the late '80s.

Strategic Simulations, Inc., was founded in 1979 and built its reputation on high quality war and strategy games for the Apple II. Some of SSI's prominent titles have included Dani Bunten's Cartels & Cutthroats, Gary Grigsby's War in Russia, and Chuck Kroegel and David Landrey's Gettysburg: The Turning Point. After acquiring its original license from TSR to produce AD&D games for the computer, SSI began to grow at a faster clip and expanded distribution by becoming an Affiliated Label with **Electronic Arts**.

Mindscape spokesperson Kevin Bachus says that his company sees SSI's product line as complementary to their own, and that they expect a certain amount of synergy between the two lines. There is also some indication that SSI will benefit from graphics toolsets available from Mindscape, and that Mindscape may learn some game balancing elements from SSI. Information sharing, we were told, is to be expected in the new arrangement.

The bottom line for gamers is that even though SSI is phasing out its AD&D line, no major changes in product philosophy or development are currently expected, according to Bachus. Meanwhile, Mindscape's emphasis on simulation, evident in the release of USS Ticonderoga, puts it in competition with **Spectrum HoloByte**, Spectrum's **MicroProse** subsidiary, and Electronic Arts' strong sim team. Mindscape's new strategy games emphasis (Metal Marines for Windows, Legions) threatens to take the company toe-to-toe with MicroProse's freshly resurrected line (Master of Magic, Transportation Tycoon) and smaller publishers like **QQP** and **Impressions** who specialize in strategy games.

Rumors surfaced more than a year ago that Spectrum HoloByte planned to purchase SSI. However, the MicroProse merger sidetracked that acquisition, and SSI decided to continue on its own path. Now that Mindscape has purchased it, SSI will be a wholly-owned subsidiary of Mindscape, which is in turn a subsidiary of Pearson plc, a London-based international media group. Mindscape currently intends to leave SSI in Sunnyvale and present management in place.

—J. Wilson

Software Publishers Association Encourages Standardization

The game industry took a few tentative steps closer towards package and labeling standardization at the recent SPA Fall Conference in Dallas. Marketing personnel have long expressed reluctance to accept packaging standardization, protesting that their products will receive less attention without unusual packages.

But one group is encouraging software publishers to standardize on three box sizes: small, medium and large. This would provide companies with the opportunity to use larger boxes when documentation and peripherals necessitated them, but shelf parity with other products when the larger boxes were not needed. Though it will require some demand from the retailers to encourage standardization, outside of leading discounters, such demand has not occurred.

SPA conferees did agree, however, on recommendations for standardized labeling. Labels describing the platform would be placed on the spine or lower left corner of the package. This label would identify the operating system as DOS, Mac, Windows, MPC 1, MPC 2, UNIX, or OS/2; and state the type of media enclosed (3.5" disk, 5.25" disk or CD-ROM).

System requirement labels would be placed in the lower right corner of the back of the box, and these would state sound board and video card support, video resolution, physical RAM requirements and hard drive space required. The SPA agreement is not binding, but this working session seemed to elicit more support from marketing representatives.

Packaging standardization makes games easier to store and would allow more titles within the limited space of retailers. Labeling standardization will make it easier to find vital information when examining products which are already on the store shelf.

—J. Wilson

Vaporous Ventures

Champions R.I.P.?
Mech Warrior 2 Scrapped?
Battlecruiser Crashing?

Games that don't meet their original release date are a common, almost accepted, part of computer gaming, but there have been several games lingering in the mists of vaporware for far too long. "What ever happened to Champions?", many of you have asked on-line and in e-mail. "What's the deal with MechWarrior 2 and Battlecruiser 3000?" We did some digging to find out....

Hero Software's Champions, the long-awaited CRPG version of the hit "people and paper" game of superhero role-playing, is in a critical state, due to a developmental coma. The computer version of the game has had a very checkered past, having migrated from problematic distributor to problematic distributor. Champions' original publisher was supposed to be **Miles Computing**, a company that suffocated on its own debt and high returns. Hero Software immediately made a deal with cash-rich **Konami Software**, at that time the darling of once omnipotent **Nintendo**. When Konami lost interest in the dwindling profit margins and increasing technical support of PC products, they sold their line to **Gametek**. Gametek, however, did not get the rights to Champions, due to a clause in the Konami contract.

Gametek expressed interest in distributing the game, but like many other publishers to whom Champions was shown, expressed their concern with the game's dated appearance. Hero, an amalgam of freelance game designers—many of whom had mortgaged their possessions to make the Champions CRPG a reality—decided that it was impractical to completely revamp the game again, and elected to release their character generation system as a utility for the "people and paper" game. Heromaker, the resultant product, has been a success as a utility, and the company has added supplementary character disks to the initial product. Nonetheless, the cash flow did not warrant a new round of development on the game itself, and many of the people involved with the game have moved on to other assignments at **Electronic Arts**, **3DO**, and **Accolade**.

What ever happened to Mech Warrior 2?

The Mech Warrior II saga is one of a complex software design that was botched in the programming phase. The project was extremely ambitious from the outset, and the design goal of having 17 different 3D 'mechs on a screen at a time turned out to be too much of a computational load for current technology. Since each 'mech was handled as a 3-D sim in and of itself, and the sims were supposed to be integrated into one game, the problems simply multiplied as the development progressed. Activision replaced their entire programming team in October, but no one is yet willing to say when gamers can reasonably expect the game to ship. Activision's CEO, Robert Kotick, informed *CGW* that the new team is now working with a 2D model as opposed to a true 3-D model, and that the revised ship date at the end of March, 1995 was probable, but not etched in stone. He was able to confirm, however, that the project has not been canceled and he does not expect it to be.

Mission Studios' Battlecruiser 3000 A.D., to be distributed by **Interplay**, is still in development. More than four years in the making, this product is essentially being shepherded to completion by one man, Dr. Derek Smart. When the original publisher, **Three-Sixty Pacific**, found itself with severe money problems, they had to let Battlecruiser go. Former Three-Sixty CEO Tom Frisina told *CGW*, "We really liked that product. We really think [Smart] will get it out someday, but he couldn't have gotten it out in time to help *us*." Mission Studios, Smart's current publisher, is disappointed that it has taken so long to finish the product, but Mission's Jeff Anderson told *CGW* that, as of the end of October, all features were functional. The company expects to test, polish, and balance the game, looking toward a possible release in the first quarter of '95.

PIPELINE

ESTIMATED RELEASE DATES BASED ON THE LATEST INFORMATION FROM GAME DEVELOPERS

NAME OF GAME, COMPANY	RELEASE DATE
11TH HOUR Virgin	1/95
1830 Avalon Hill	1/95
BATTLEDROME Dynamix	12/94
BEYOND SQUAD LEADER Avalon Hill	Q1/95
BREACH 3 Impressions	2/95
BRETT HULL HOCKEY Accolade	1/95
BUREAU 13 GameTek	Q1/95
CELTIC TALES Koei	1/95
CIVIL WAR Empire	2/95
COMMAND & CONQUER Virgin	3/95
CONFIRMED KILL Domark	5/95
CREATURE SHOCK Virgin	12/94
CYBERIA Interplay	12/94
CYBERSPACE Empire	12/94
DARK FORCES LucasArts	1/95
DESCENT Interplay	12/94
DISCWORLD Psygnosis	12/94
DUNGEON MASTER II Interplay	12/94
ELDER SCROLLS: DAGGERFALL Bethesda	2/95
FRONTIER: FIRST ENCOUNTER GameTek	Q1/95
FULL THROTTLE LucasArts	2/95
HARVESTER Merit	5/95
HIGH SEAS TRADER Impressions	1/95
INCA III Sierra	4/95
KINGS QUEST VII Sierra	12/94
LANDS OF LORE 2 Virgin	Q1/95
LEGIONS Mindscape	12/94
LEMMINGS CHRONICLES Psygnosis	12/94
LORDS OF MIDNIGHT Domark	12/94
LOST ADMIRAL 2 QQP	Q1/95
LOST EDEN Virgin	1/95
MAGIC CARPET EA	12/94
PERFECT GENERAL 2 QQP	12/94
PHANTASMAGORIA Sierra	2/95
PIZZA TYCOON MicroProse	1/95
RELENTLESS EA	12/94
RENEGADE SSI	12/94
STALINGRAD Avalon Hill	12/94
STONEKEEP Interplay	12/94
THE PURE WARGAME QQP	12/94
THIRD REICH Avalon Hill	12/94
WORLD CIRCUIT 2 MicroProse	Q1/95

They're Not Just Games...

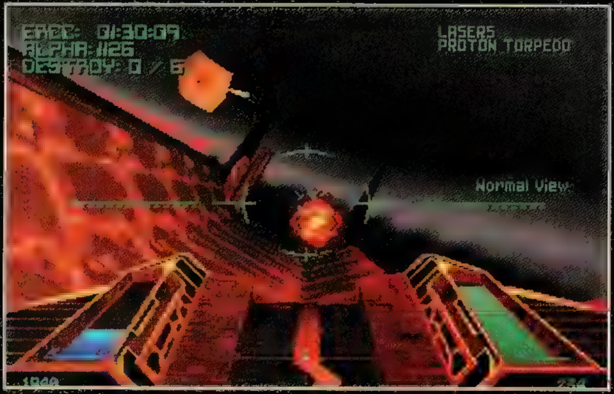
The Elder Scrolls
ARENA

> "... may well be the game that establishes the new formula in CRPG's."
>
> —*Johnny Wilson, Computer Gaming World*

> "TES: Arena surpasses all other role playing games in depth and realism! A must buy for RPG fans!"
>
> —*Russ Ceccola, Electronic Games Magazine*

> "...a must-have, huge role playing adventure. TES:Arena is the best RPG of the Year."
>
> —*Strategy Plus Magazine*

DELTA V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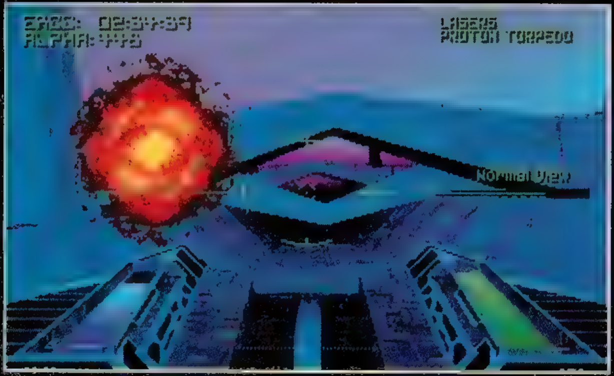
LASERS
PROTON TORPEDO
Normal View

"One of the best flight sims I have ever seen."
—Steve Honeywell, Computer Game Re

"there is nothing out there on the market that compares ... or even comes close"
—Ed Dille, Electronic Ga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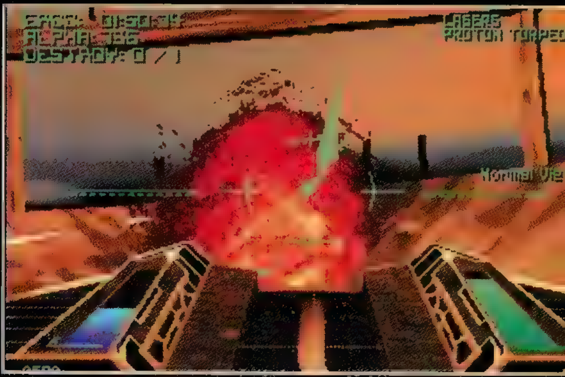
Normal View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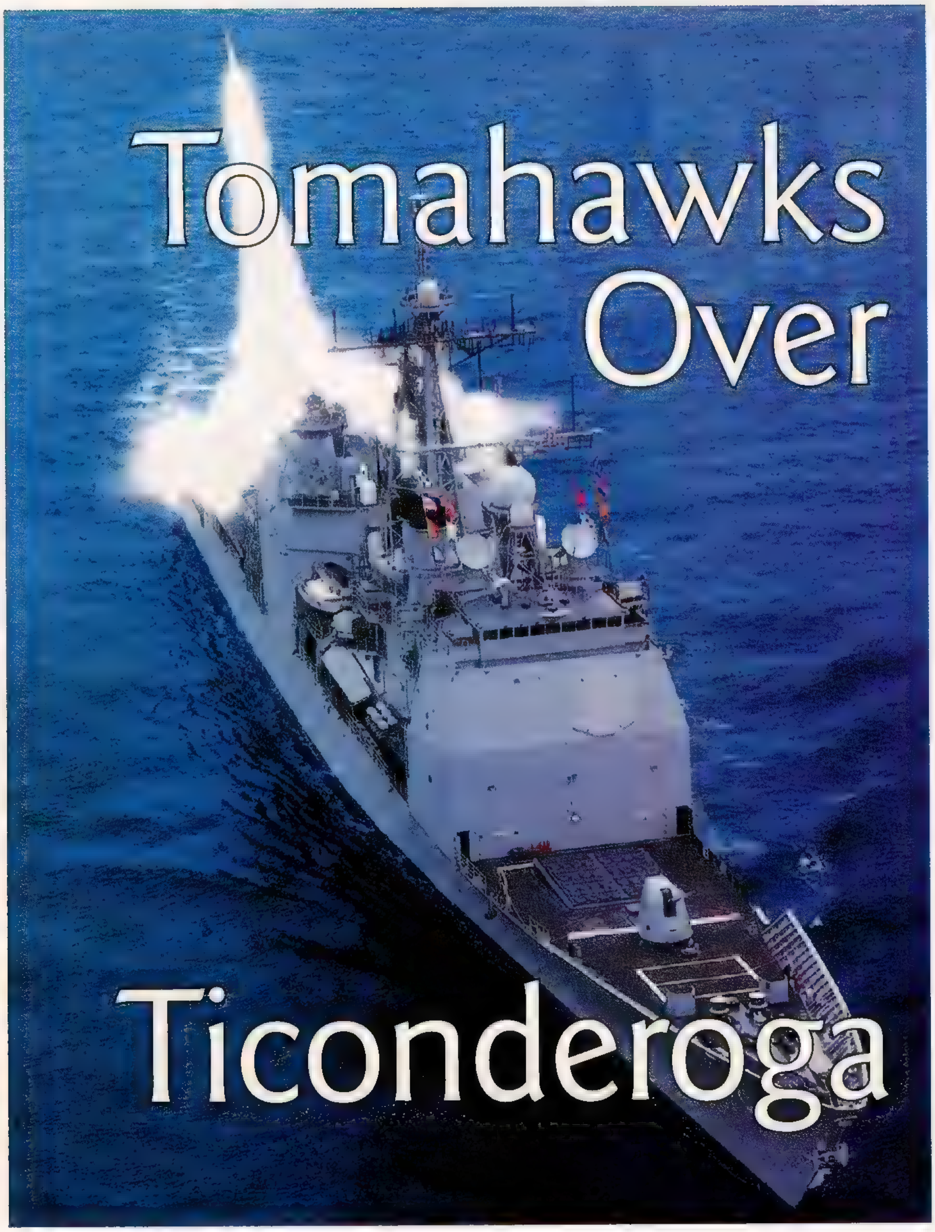
Circle Reader Service #40

Tomahawks Over Ticonderoga



Mindscape Sails The USS TICONDEROGA From "C" To Shining Sea

by Terry Lee Coleman

ALTHOUGH DESIGNED TO BE THE MOST POWERFUL VESSEL AFLOAT, THE TICONDEROGA-CLASS warship had to overcome a great deal of criticism during the past decade. Perceived as an unnecessary expense for U.S. taxpayers, especially given the fall of the Berlin Wall and the breakup of the Soviet Union, Congress asked what enemies it might face that would require such a potent weapon in our arsenal.

The arrival of the Gulf War answered questions about potential enemies, and the Ticonderoga vessels were vindicated by their excellent performance in combat. Cruise missiles were delivered to land targets with pinpoint accuracy, decimating enemy radar systems, munitions and other military targets, while minimizing risk to Coalition forces. That there was no hesitation to send naval forces into the heart of battle was a vote of confidence for the Ticonderoga's defensive capabilities as well.

USS TICONDEROGA, published by **Mindscape**, is a detailed simulation from England's **Intelligent Games**, and features the design talents of Matthew Stibbe, noted for IMPERIUM, among other strategy and simulation games. Nonetheless, the maritime history of the British means little in the annals of computer naval simulations. Since the 8-bit days of computing, few floating sims have really captured the imagination of gamers as successfully as their more celebrated airborne brethren. Although AEGIS: GUARDIAN OF THE FLEET set a course to become the FALCON of the high seas, it was hindered by poor documentation and disturbing crash bugs. USS TICONDEROGA: DEFENDER OF LIBERTY is an attempt to surmount waves where others have floundered, as Mindscape banks that the mighty cruiser, with its high-tech weaponry, will capture the interest of simulation die-hards and wargame enthusiasts alike.

The Ticonderoga is impressive, with a towering superstructure that would seem to make the ship top-heavy. The graphics in USS TICONDEROGA do an even better job than AEGIS of capturing the density of the on-deck equipment, in particular the huge radar arrays, a primary part of the Aegis defense system carried by the Ticonderoga cruiser. The familiar Harpoon launchers and the hatches that hide deadly Tomahawk cruise missiles are easy to spot, and nicely rendered.

As good as the exterior graphics are, they fail to prepare gamers for what awaits them inside the ship. A Silicon Graphics-rendered wonderland will seduce even the most jaded of naval aficionados. Surprisingly, unlike many recent graphic extravaganzas, TICONDEROGA's visuals offer more than mere eye-candy. Each screen has a number of interface hot spots that perform critical game functions or bring up needed information. The interface is remarkably intuitive, and the entire ship may be traversed from stem to stern with mouse clicks and hot keys.

Similarly, a right mouse click brings up the five main areas of the ship: the CIC, the Map Room, the Helm, the Communications Center, and the Captain's Cabin, any of which can then be reached by simply clicking on the room's picture. While this might be useful in an emergency, most gamers will find themselves "walking" from one location to another, simply because it gives a more realistic

SNEAK PREVIEW
Game Still In
Development

feeling of actually being on the ship. In addition to seeing the 3D Studio-sculpted walls, you will hear digitized footsteps as you move down the hallways, with the footfalls actually sounding different when going up or down stairs. Most areas on the ship are appropriately cramped, while the captain's cabin allows you the luxury of a bit more room. The lighting adds a more subtle touch, with the Helm brightly lit, and the CIC area suffused with blue and red lighting. It's obvious that the design team spent some quality time aboard a real Ticonderoga cruiser.

> ***No big modern war has been won without preponderant sea power; and conversely, very few rebellions of maritime provinces have succeeded without acquiring sea power.***
> ***—Samuel Eliot Morison***

USS Ticonderoga puts a lot of power at your fingertips, not the least of which are the immense detection capabilities of the cruiser, which allow you to quickly pinpoint enemy vessels from afar. In addition to the main battle perspective (using standard naval symbols, much like Harpoon II), there are separate views for surface, submarine and air contacts, as well as a different sensor screen. Finally, there is a screen that gives the traditional 360-degree radar view. All of these can be accessed quickly from hot keys, and each has switches to be toggled for weapons launch. Should you be at the submarine contact screen, for instance, you would fire ASROC anti-sub missiles. Against enemy surface ships, you would be given a choice of launching a Harpoon or Tomahawk, and so forth. Even though there is a lot of data-crunching going on, Ticonderoga shows the strengths and weaknesses of each weapon system, without ever burying the player under an avalanche of statistics. Maximum ranges are delineated by on-screen circles; if you wait too long to fire a weapon, you are informed that the target is out of range—or worse, within minimum range.

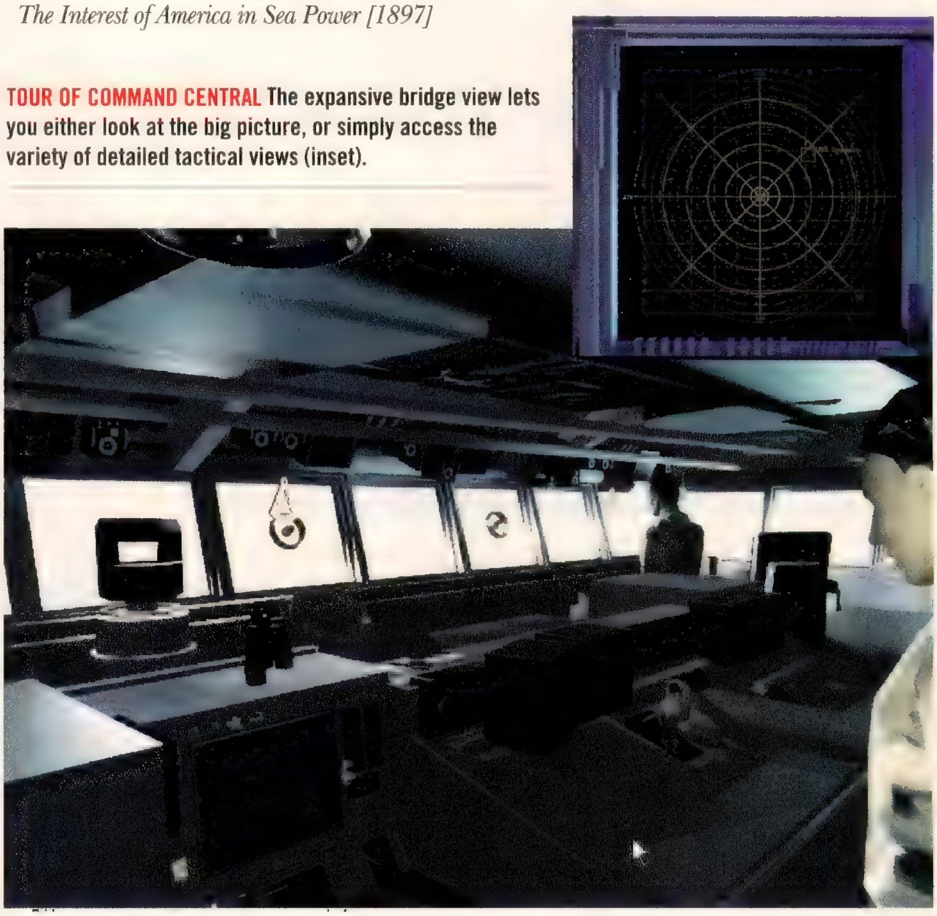
Ticonderoga is a real-time simulation, but features time compression up to 256 times normal speed. Rather than the frenzied joystick maneuvers of a flight or racing simulation, you find yourself pushing buttons, and sometimes frantically clicking a mouse to deal with incoming threats. While moving about the vessel, you may perform every duty yourself, from steering the ship and firing every weapon, to examining all the various radar and sonar contacts. Ticonderoga was not intended to be a throwback to Silent Service, with the captain leapfrogging from one station to another, but it still allows micro-managers to exercise almost complete control over the sim.

In the role of ship's captain, you must trust your crew to do their duty—or drive yourself crazy trying to do everything. The latter is soon rendered impossible by the rapid unfolding of events, while the former offers a pleasant surprise. Unlike the wingmen on many a flight sim mission, the Ticonderoga crew evidently know how to perform their jobs. Instead of text popping up on screen *a la* Harpoon, you are treated to digitized speech from the various crew members. Not only is the acting better than in most multimedia affairs, but there's something that adds to your sense of urgency when an ensign asks: "Target acquired, shall I fire, skipper?" Fortunately, along with the voice-over, such crew members as the ship's second-in-command are also good sources of advice.

> ***Whether they will or no, Americans must begin to look outward.***
> ***—Alfred T. Mahan,***
> *The Interest of America in Sea Power [1897]*

As captain of a Ticonderoga, both you and your crew face a variety of dangers as you attempt to protect American interests abroad. In some campaigns, there are political restrictions on what you may attack, while in others, you may fire Tomahawks with impunity. Regardless, the Ticonderoga is quite capable of tackling most enemy threats on its own. In one early scenario, I managed to dispatch some eight Osha II ships without suffering a single hit. When facing something more threatening than overblown torpedo boats, however, even the most powerful ship can use some assistance.

Typically, the Ticonderoga is used to lead a naval task force, sometimes coordinating with land-based air. The resources available to you in Ticonderoga are staggering: In one mission, I had two Spruance-class destroyers, another guided missile cruiser, and the Nimitz, a huge aircraft carrier, along with its complement of strike and interceptor aircraft. Whereas Aegis limited your control of these units to the relatively simple process of launching them, Ticonderoga allows you to move from asset to asset as you attack with them. Obviously, this is more akin to the control given in the classic M-1 Tank Platoon and recent releases such as Ar-



TOUR OF COMMAND CENTRAL The expansive bridge view lets you either look at the big picture, or simply access the variety of detailed tactical views (inset).

MORED FIST, which allow switching between vehicles. Still, it's a far cry from the ability to control the minutiae present in most wargames, and it's doubtful most simulationists will complain.

The campaigns themselves cover five critical areas around the globe: Africa, Asia, the Middle East, the Caribbean, and Mediterranean Seas. Even with the collapse of the Soviet Union, the designers have cleverly extrapolated from current events to create plenty of potential nightmares for the western world. Our old nemesis, the Soviets, resurface as a nationalist resurgence in Russia sweeps the radical Zhirinovsky into power. After blowing on the ashes of the Cold War with a period of crazed military spending, the revamped Russians prepare to invade Eastern Europe. This scenario is not that far removed from the typical Tom Clancy novel, and a great challenge in any case, particularly the one where an enemy vessel tries to defect.

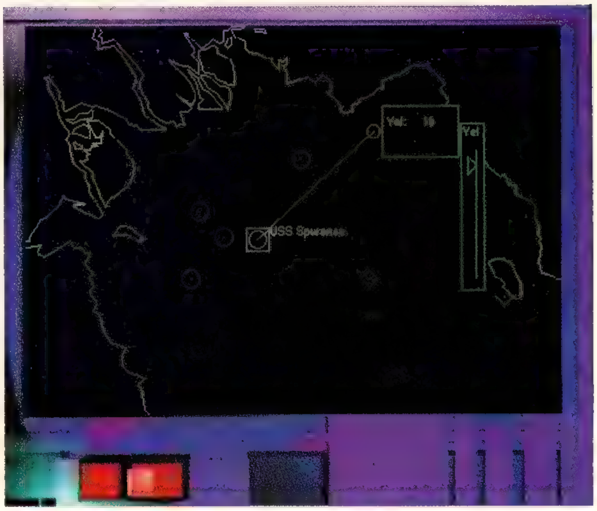
It was inevitable that a Gulf War campaign would be part of any modern naval sim. But instead of TICONDEROGA bashing the hapless Iraqis in a reprise of Desert Storm, we find that Iran has made itself into the premier power in the Middle East. American forces are rushed to the area to protect vital US oil interests, but forced into a "freedom of international navigation" exercise which ties their hands until hostilities commence. Of course, it doesn't take long for the fireworks to start in earnest, as Iran counters with an assortment of naval hardware that includes several left-over Soviet subs. The situation is complicated by the Saudi Arabians, who only have enough naval forces to get in the way. Surprise appearances by enemy aircraft more sophisticated than the Iranians are supposed to have, add a lot of spice to the already tense stew brewing.

CINEMATIC SCUD-BUSTING A large number of cinematic cut scenes will tell the tale of your successes and failures.

The Caribbean and Mediterranean campaigns were not available in time for our preview. The former should center around Cuba, while the Mediterranean could show a resurgence of the Black Sea Fleet. Additionally, there are the usual internecine struggles over European stomping grounds to keep things stirred up.

Nonetheless, all these pale next to the hypothetical Korean campaign. The designers postulate that North Korea finally builds nuclear weapons, backing them up with the largest conventional army in the world. As troops mass along the South Korean border, your Ticonderoga leads a task force rushed in to defend not only South Korea, but Japan as well. Figuring that the Patriot antimissile defenses won't be enough to counter the threat of North Korea's nuclear projectiles, higher command has thoughtfully provided you with the latest tech toys—LEAP (light exo-atmospheric projectile) missiles. If you're a little slow on the trigger finger, Hiroshima and Nagasaki will once again feel the fires of a nuclear hell.

The campaigns are broken down into missions that may be played in any order desired. Not only is this flexible for the gamer, it allows for a lot of replayability. Each mission is largely based on the success or failure of previous missions in the campaign. But there is a degree of randomness in the enemy units that might pop up and in the potential events that might occur. Occasionally, you could run into a destroyer or extra sub that wasn't there the last time you sailed through. The AI seems to vary as well from mission to mission, although you can depend on a certain degree of consistency. Regardless of how many times you replay the Gulf War campaign, for example, the Iranians retain their fanatical determination. The victory conditions tend to reflect political reality and you find that the American people are not very tolerant of losses, particularly in missions against lesser powers.



CIC EYE-VIEW The large CIC display offers information which will seem familiar to HARPOON players. This view shows relative velocities of friendly and enemy vessels.

The variety of missions in the campaigns is pretty impressive. One Gulf mission has wolfpacks of Kilo subs stalking your task force, hoping to bag either the Ticonderoga or maybe even an aircraft carrier. In another, it's mainly your lone Ticonderoga taking on a group of enemy surface vessels, with the rest of the task force arriving piecemeal. A European mission involves providing air defense for marines landing ashore, when suddenly the Kirov aircraft carrier and a host of Russians show up. In some Ticonderoga scenarios, you will marvel at your ship's endurance, as it survives numerous hits.

> ***He who commands the sea has command of everything.***
>
> ***—Themistocles, from Cicero***

While it's hard to know how any ship will sail until it is launched, TICONDEROGA seems to have been built on a sturdy hull. The role of being a ship's captain retains its focus throughout the campaigns as you either manage to advance or ruin your career. Remarkable first-person graphics and digitized speech do an excellent job of suspending disbelief while adding to the entertainment value. In the end, TICONDEROGA seems to be the spiritual successor to RED STORM RISING, because it manages to combine those elements which so often seem at odds: a good simulation of the subject matter, and tense and challenging game play. If, unlike its recent competitors, Ticonderoga's documentation and programming are clear and thorough upon release, then it could rule the gaming seas for some time to come.

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Up On The Click, Click, Click!

Santa's Holiday Mission Planner

Illustrations by Kelly Freas
Header Illustration by Brian Clarke

Flight Deck,

HO-HO-HO!
KELLY FREAS 94

I know what they're saying about me. The jolly old fat man's lost it. He only has to fly one mission a year and he still can't hit all the waypoints before he goes home and lands belly down in his Fortress of Holly-tude. Well, you try landing red nose up on a carrier deck with a landing gear more suited for tundra than tarmac. You try dancing over the international dateline on Christmas Eve, only to find you're coming at the deck from the wrong direction. You try catching the cable with a candy cane tailhook or calling the ball with a left-over Christmas tree ornament. We'll see how much "Ho! Ho! Ho!" you have left when you want to be safe and warm at ho-ho-home.

Well, this year, thing's are gonna' be different. The editorial elves at *CGW* have melted half the snow at the North Pole with their Pentium processors as they tried to run every line of code they could install prior to the holiday season. Then, they locked themselves in their Writer's Workshop and packaged more than 150 gift ideas for computer game enthusiasts, just in the St. Nick of time. So, here it is—a merry mission planning guide for holiday happiness that I ho-ho-hope will be the only list any Santa has to check twice. So, let the visions of digital sprites dance in your heads as you turn to your favorite type of computer game and discover exactly what you want Santa to leave under your tree.

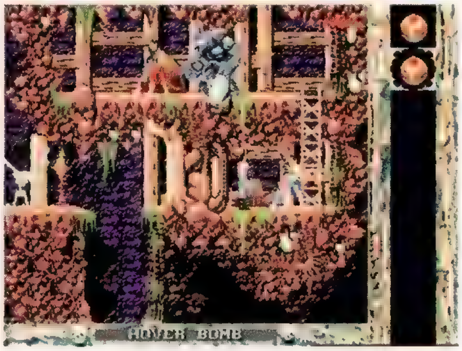
ACTION

Blackthorne (Interplay)

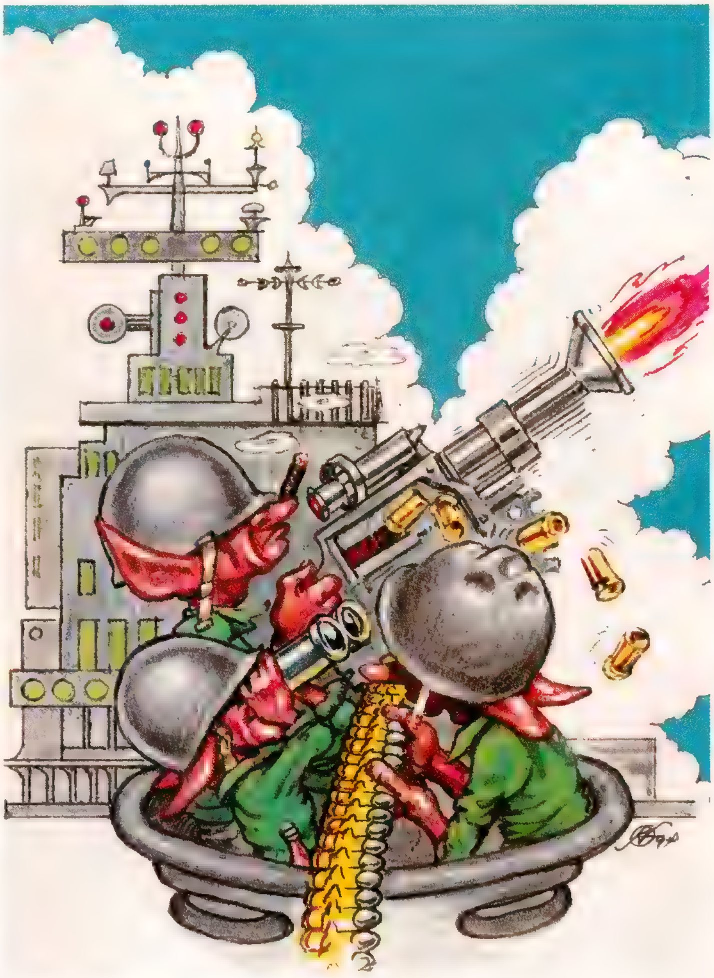
Prince of Persia fans will feel right at home in the Blackthorne world. As yet *another* long-lost heir, you have decided to return to your birthplace after many years' absence and avenge the death of your father and his castle. After arming yourself with a shotgun and hitting the revenge trail, you'll run, hide, jump, and kill your way to liberating the castle and its slaves. Shooting an enemy causes viscera to explode in geysers of blood or paints the wall with blood evacuating their heads. Although joystick jockeys won't exactly have sore wrists after playing Blackthorne, there are a couple of situations where fast reflexes are definitely not optional. On the whole, however, this tends to be a thinking man's action game. IBM, $69.95

Blake Stone: Planet Strike (Apogee)

Using software licensed from **id Software**, this is a neo-Wolfenstein romp that reunites agent Blake Stone with the evil Dr. Goldfire and his crew of genetically engineered mutants. The baddies are a bit more cartoonish than in most Doom-like affairs, and the sound effects aren't very creepy. Still, the game is easy to get into, and is technically well-done, with the art and movement seamlessly integrated into the combat sequences. The automap feature has variable depths, with the possibility of seeing secret doors on certain levels of magnification (provided there's enough energy). Some creatures appear sedate at first, prior to emerging from cocoons, or morphing from statues into their more threatening forms. For the younger set especially, a less-realistic (and less visceral) alternative to Doom. IBM, 49.95



Blackthorne



BreakThru (Spectrum HoloByte)

The theme of BreakThru is breaking down walls. Appropriately enough, the Berlin Wall background of the early levels serves as the metaphor for the entire game. By clicking on one of several contiguous bricks of a particular color, all of the bricks in that color block will disappear. In what is almost a reverse Tetris, you try to remove the wall (section by section) from a nearly full "well" before it can be rebuilt with new colored blocks dropping from the top of the screen. It is true to its Tetris roots, but adds things like bombs, missiles and tin cans to add new spin to old ideas. See the review in *CGW* #123. IBM, Mac and Windows, $39.95

Burn Cycle (Philips Interactive)

Burn Cycle, to be ported from the Philips CD-i system for the holidays, reminds us of a pumped-up **American Laser** game. The usual shoot 'em up action is spiced by impressive digitized full screen video and a smidgen of adventure. Your mission: to escape a cyber lab in one piece by transforming anyone who gets in your way into a walking ventilation shaft. The first-person motion is node-based. Your character, Sol Cutter, moves from predefined spot to predefined spot instead of continually walking with a fluid motion. Still, the graphics are gorgeous, and the musical score shifts from jazzy to cyber-edged, adding to the mood. If you don't mind restarting the game every time your character gets shot even once (where's that bullet-proof vest when you need it?), Burn Cycle provides some fairly entertaining, mindless arcade fun. IBM CD, CD-i, 59.99

Creature Shock (Virgin)

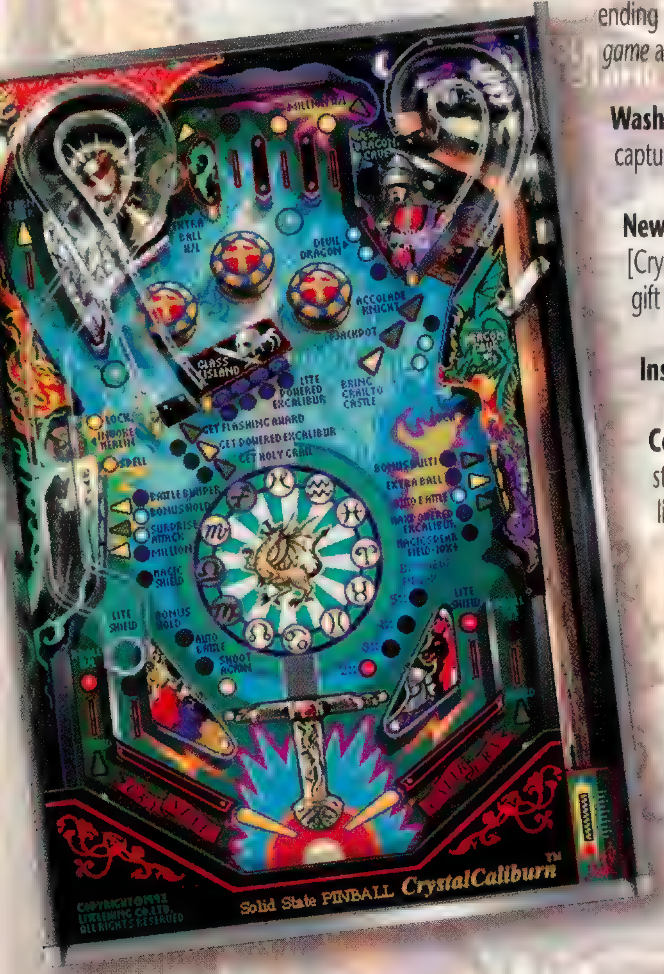
It always happens, doesn't it? You're enjoying a pleasant three-day space cruise, when all of a sudden, you run afoul of a glorified asteroid with tentacles which, in turn, happens to be inhabited by aliens with a bad attitude. That's the premise of Creature Shock, where you play cosmic Rescue Ranger. This early version of the game had some awesome first-person graphics, giving it a particularly eerie atmosphere and a great feeling of motion. At this point, however, the action sequences mostly consist of moving your blasting reticle around the screen and targeting ferocious-looking baddies in something like an overblown shooting gallery. IBM.

Crime Patrol (American Laser Games)

This latest title in a series of first-person, digitized video shooters is, surprisingly, pretty darn fun. Crime Patrol, like its predecessors Mad Dog McCree and Mad Dog II, features full-screen

Never Lose Sight Of How Pinball Should Be Played.

A truly great pinball game is more than great graphics and spectacular sounds, more than the latest arcade features like 3D ramps and three multi-ball play, more than fast ball movement and precise flipper control, and it's more than being able to see the whole playfield at once so you can aim your shots. A great pinball game has that unique quality of playability and never-ending challenge that keeps you coming back for...*just one more game* and a shot at your new high score!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Washington Post– "Crystal Caliburn perfectly captures the essence of a great pinball machine."

New York Times–"The realism is striking... [Crystal Caliburn] will be at the top of Silicon Santa's gift list this year."

Inside Mac Games– "ARCADE GAME OF THE YEAR"

Computer Game Review– "Crystal Caliburn sets a new standard. For realistic pinball on a computer, there's nothing like this game."

Electronic Entertainment– "Crystal Caliburn is simply the best, most realistic, most challenging pinball simulation for the Macintosh yet." (Rating: 9 out of 10)

GAMES Magazine–"You'll forget you're playing on a two-dimensional computer screen... the realism is astonishing."

MacUser–"Electronic pinball's Holy Grail." (Rating: 4 1/2 out of 5)

SYSTEM REQUIREMENTS:

MACINTOSH: 13" or larger monitor, 256 colors, and 4MB RAM.

WINDOWS: 386 or faster processor, Windows 3.1, 256 SVGA monitor, 4MB RAM. Supports SoundBlaster® and other Windows compatible sound cards.

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video spinning quickly, but slightly pixelated, off a double-speed CD-ROM drive. You play a cop who's trying to rise through the ranks from rookie to detective to SWAT. Forget about politics and paperwork; your job is simply to blow away the bad guys in one well-designed, realistic location after another. The stunt production quality compares with TV stunt-work, from cars crashing and vaulting into the air, through guys falling out of multi-level garage structures, to an assailant crashing back into a high-voltage fence and dancing the 'lectric chicken. Despite one little hiccup that caused a complete crash to DOS, this appears to be a very clean title. Now if only they'd upgrade that tacky little clip art that serves as the targeting reticule. IBM, $59.95

Cyberwar

Crystal Caliburn (Starplay)

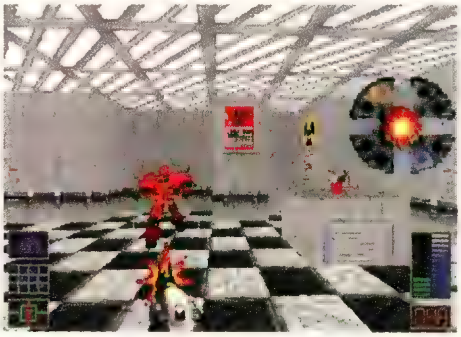
It's hard to believe that a Windows product can offer fast pinball action, but somehow the folks at **Little Wing** have managed to pull it off with flair. The Arthurian motif requires that you "accolade" the 12 Knights of the Round Table to gain the Holy Grail. Doing so requires negotiating ramps, tripping switches and bombarding the pirates at Glass Island, where you are rewarded with digitized crystal crunching. The pinballs fly off the ramps and the bumper action is frenzied enough to keep trigger-fingers constantly twitching. When three balls are trapped in sequence, Caliburn responds with some of the best multiball action we've seen, as three balls assault the player's reflexes simultaneously. Although it only has one table, Caliburn offers some of the best sound, graphics and gameplay of any pinball simulation. Pinball wizards should check out the full review in this issue. Windows, Mac, $49.95

Cyberwar (SCI)

At first glance, this seems merely a case of licensing run amuck. Fortunately, however, this sequel to Lawnmower Man actually resembles the film from which it was derived more than the original game. Instead of the limited 32 colors of its predecessor, the evil Cyberjobe is resplendently rendered here, and the overall game manages to capture much of the visual magnificence of the movie. Of course, the biggest problem with the original game was a lack of interactivity. The designers have addressed that problem to a degree. While there is still too much 3D eye-candy, at least the puzzles require a greater deal of thought than before. The action is also more varied, featuring a wild ride through a tunnel in a cyber-ship, and a first-person blast fest with some inhuman baddies (wonder where they got that idea?). If not the most original of games, it is at least a worthy effort, based on what we've seen so far. IBM, $79.95

Cyberia (Interplay)

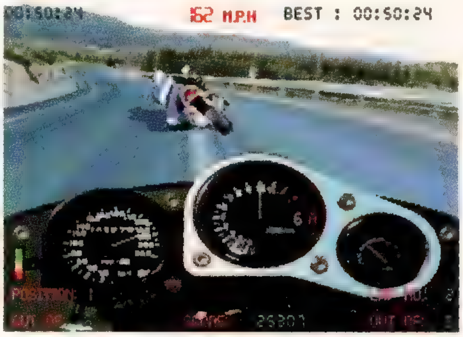
With a plotline right out of a James Bond movie, this *silicon meets Hollywood* game bursts on the scene this holiday season. Unlike many 3D Studio constructs of late, this actually seems to have some gameplay to go along with the pretty pictures. Rather than the canned 10-minute long introduction we expected, our cyber hack turned secret agent was thrown right into the fray. Adding to the fun of the drop-dead graphics was a great score, and some deceptive puzzles that were challenging, yet straightforward. The restricted arcade action is a little questionable, however. When you're in the cockpit of the jet fighter, the plane flies on auto-pilot while you simply become the gunner in what is essentially a glorified shooting gallery. Despite this, the action does have its addicting moments, and we found ourselves constantly coming back for more. Whether or not the arcade sequences are to your taste, chances are you'll find a lot more game here than in say, Rebel Assault. IBM CD, 79.95



Cyclones

Cyclemania (Accolade)

Driving fans might want to check out this motorcycle racing game for its furious gameplay and integrated digitized video. Enter the streetcycle "grand prix" by challenging five racers on a variety of convoluted courses. The fast-scrolling digitized video footage of each road is impressive and you'll definitely get a good, solid perception of speed as you put in your laps. But all is not smooth cruising. Motorbikers will quickly become road pizza if they don't watch out for obstacles in the road and oncoming traffic. And when you do crash (and you will), Cyclemania cuts to the tape and shows you one of the many detailed full video crashes from its gruesome library. To make matters more interesting, after each race in the championship tour, you can spend your winnings on upgrades to your two wheeler. The action is challenging, especially at the most difficult levels, and while this CD-ROM is mindless arcade action, it should keep fans burning rubber for some time before growing stale. IBM, $59.95



Cyclemania

Cyclones (SSI)

Like many games of this genre, the plot—alien invaders taking over an Earth weakened by economic and social collapse—is but a thinly-veiled excuse to load up steroid-laden, combat-crazy types for intense weapon-wielding action. Within these usual restrictions, the game performs well, even allowing you to look up and down, a departure from Doom. A really nice touch is the ability to control your

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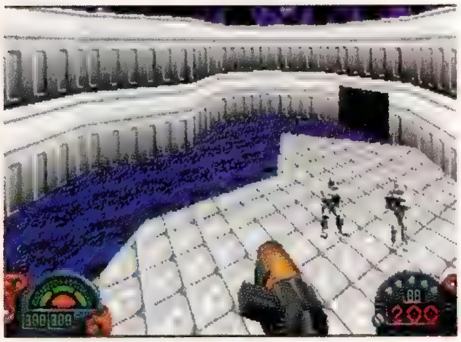
weapon independently from your body. The array of weapons include plasma guns and gauss pistols, along with the more mundane implements of destruction. Play generally boils down to the usual "find the keycard, trip the switch, leave bodies strewn about" kind of adventure. At least Cyclones has some original ideas to bring to the demolition party. IBM, 54.95

Dark Forces (LucasArts)

If you've ever wondered just how the Rebels got those top-secret plans they used to plot the destruction of the Death Star, here's your answer. As a Rebel Agent, you must single-handedly fight your way through the Death Star defenses, leaving lots of dead Stormtroopers for the Emperor's finest to clean up afterwards. The flawless implementation of the laser fire and the tremendous soundtrack from the *Star Wars* films left us feeling almost as though we had stepped right into one of the movies. Adding to the experience are the sumptuous graphics, combining the familiar look of the films with a very credible first-person view. For those weaned on the *Star Wars* universe, Dark Forces offers a science-fiction action adventure which would be hard to resist indeed. IBM



Dark Forces

Dark Legions (SSI)

If you liked Archon and Archon Ultra, here's a holiday gift to shove under your shrub. Dark Legions is a robust strategy/action hybrid that boasts good graphics and creatures that seem to step right out of one of Ralph Bakshi's cel-animated nightmares. Facing either the computer or another player via modem, you move your forces around an eerie battlefield of varying terrain in trying to get the strategic upper hand. When units meet, the battlefield explodes into an action mode, allowing you to control your character via joystick or keyboard in order to clobber, drown or burn the enemy's creatures. The game offers infinite customization by enabling you to "purchase" armies, equip them with magical properties, and place up to 50 on the battlefield. Each side must find the other's orb of power, hidden on one of its characters, and slay the orb bearer in order to win the battle. Although the game is not perfect (the AI certainly won't be the Valedictorian of this year's class), Dark Legions is a great mix of strategy and action. See the review in *CGW* #123 and strategy article in *CGW* #124 for more details. IBM compatible, $69.95.

Delta V (Bethesda)

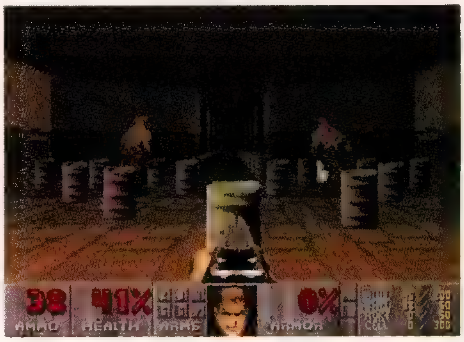
If you have fond memories of running down the Death Star trench in *Star Wars*, you'll recognize the main theme of this game. The science-fiction surroundings have changed somewhat, since the trench you run exists in cyberspace, but the enemies are the usual arcade obstacles that get in your way and must, of course, be shot down in typical arcade fashion. A variety of futuristic fighters are supported by a detailed database, along with a wide array of powerful and increasingly expensive weaponry. Those who believe that cyberpunk has been dead for years will find that it's very easy to ignore all the tacked-on cyberpunk references to ICE, netrunners and the like. Fortunately, it hardly matters, since the action is as fast and furious as your 20th century hardware will allow it to be. Action mavens can get a more thorough test ride from the review in last month's *CGW*. IBM, $69.95

Descent (Interplay)

Descent is a Doom imitator in more ways than one. Not only is it a 3D action game, but it will be released as shareware. The 30 levels of this space station are cleared, not with marines, but with a flying robotic ship. This twist is accentuated by the action taking place in a vacuum. So, the lack of gravity makes for some cool turns and flips during play, especially as your vessel zips along passageways, bounces almost elastically off walls, and generally enjoys considerable freedom of movement. Be careful—as interesting as the 3D-mapping system is, it can be a real bear to orient your ship and pinpoint your position at times. In the pre-release version we played, enemy ships seemed under-sized and nondescript, but this may be addressed before the game is finished. The most back-handed compliment to be paid to Descent is that its rapid movements may result in more motion sickness than any other game on the market. IBM, shareware.

Doom II (id Software)

Warning: This is a product filled with frantic action, sinister atmosphere and lots of violence. Politically Correct gamers are advised to exercise caution. Actually, this warning isn't on the Doom II game, but it easily could be. The response to Doom II is one of rare visceral thrill, even of fear-induced emotion. Few care that the game has virtually no plot elements to speak of. The first-person viewpoint has yet to be surpassed in a computer product, and the ability to join one's friends on a network points the way to the future of gaming. Doom II features more insidious creatures than its predecessor, and the 30 new levels are so treacherously laid out that even veteran Doom-meisters will gnash their teeth in frustration. Nonetheless, they will play the game again...and again...and again. Anything less than a 486 will fail to realize the full experience. Those few humans unfamiliar with the Doom II experience may enlighten themselves with the review in *CGW* #124. IBM, $59.95



Doom II

Fortress of Dr. Radiaki (Merit)

This game looks as though someone designed a Doom-clone while watching a late-night rerun of *Dr. No*. Instead of James Bond, you portray a UN agent (shades of *The Man From U.N.C.L.E.*) who must wind his way through the labyrinthine levels of Dr. Radiaki's lair, en route to the ultimate confrontation with the evil one. Set in 1963, the game includes all the standard spy-genre elements: a villain holding the world

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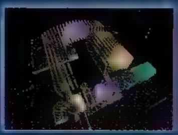

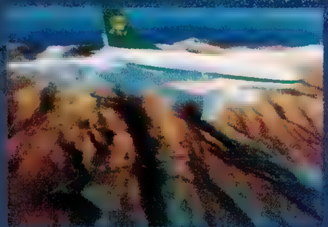

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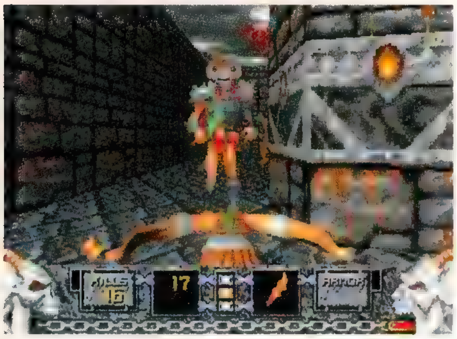
hostage because he just might have an A-bomb; Cuban soldiers with bad Latin American accents ("We don' need no steenking acting lessons!"); mutant alligator men; tin-can robot rejects; stealthy Ninjas; and low-res Samurai in full ceremonial armor. The game's action level is dampened by a confusing strategic map, and it lacks the polish of Doom. Still, for those who just can't get enough first-person action, Dr. Radiaki offers an exotic alternative. IBM, $59.95

Heretic (Raven)

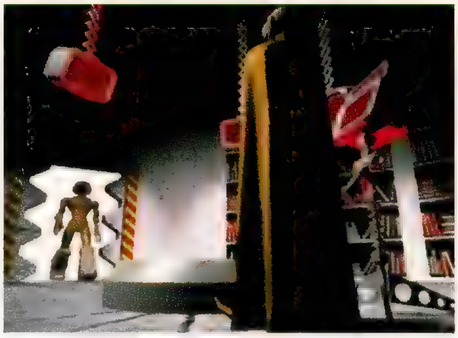
Designed in consultation with **id Software**, Heretic uses the actual Doom engine, offering it obvious advantages over most of the competition. The medieval, magical world resembles Doom superficially, but the wonderfully rendered villages look even better than anything in Doom. Ornate houses line the streets, streams flow in a deep, rich blue, and the detail of artistry is very evident in the stained glass windows. The numerous creatures and weapons are straight out of an RPG gone action-berserk. In addition to the usual melee, firing and flying creatures, there are a number of wizards, sorcerers and the like who weave spells and carry magical weapons. Your response comes from six different weapons, which fire arrows, hurl bolts of energy, or magically stun your enemies. Each of these may be enhanced to wreak even more mystical havoc, (one transforms baddies into chickens), and you may store magical items for later use. The great engine, graphics and gameplay, along with 2-player modem and 4-player network play, makes Heretic seem a very likely hit. IBM.



Heretic

Inferno (Ocean)

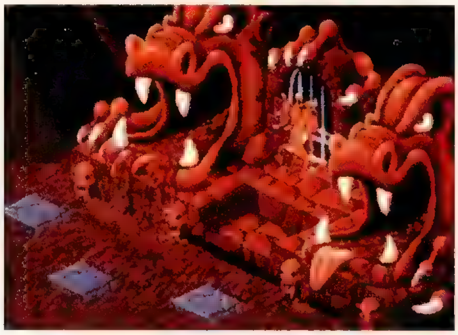
Sporting a slick, graphic novel style, Inferno puts you in command of one of the most awesome fighters in the galactic fleet. While flying the usual gauntlet of different missions, gamers will find themselves physically dodging and leaning as they try to fight off the deadly alien menace. The action here is blinding to the point that the learning curve is fairly steep. The storyline, incorporating lots of cinematic angles, is very well done. Little things, like the British voice acting and the subtitles for the aliens' unique dialogue, bestow Inferno with a distinct sense of character that is at once reminiscent of a good old "B" movie with a dash of *Star Wars*. Gamers who wish to jump right into the fray will appreciate the action mode, and added depth is provided by a career mode which puts most action games to shame. There's even a "director's cut" plotline for those who dig the game's cinematic atmosphere. Some 6000 potential story outcomes and one of the best soundtracks of any recent game give the impression that Inferno will stay on hard drives a lot longer than most science fiction action games. IBM, $59.95



Inferno

Isle of the Dead (Merit)

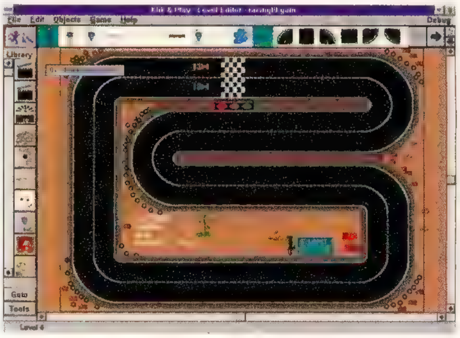
Sort of an odd mix of adventure and 3D action game, Isle of the Dead actually allows players to move around on a South Pacific island in a manner reminiscent of a 1930s pulp novel. The graphics try for a B-film kind of look, and the sound will evoke memories of late-night horror shows. The deliberately campy scenes are at their best in the non-interactive screens, although you do get to shoot at green zombies of all sizes and shapes during play. As with most adventure games, there are multiple outcomes, depending on degrees of success or failure. Obviously trying to be a spoof of the Doom genre, this game is mainly for those who want a little George Romero with their sawed-off shotgun action. IBM, $29.95



Litil Divil

Klik 'n play (Maxis)

Strap on those tool belts, wannabe game designers, because here comes Klik 'n Play, **Maxis**' Windows-based game construction set. Before you turn away for fear of long data strings, cheesy graphics, and tinny sounds, reconsider. This software toy sports a CD-ROM full of cool sounds, graphics clips, and animation, as well as more than 10 examples of games which put some of the shareware currently on the market to shame. For the serious hacker, as well as the slightly curious, Klik 'n Play provides all the tools, graphics, and code you'll need to successfully design your own games, mostly of the action type, but you can create card games as well. Although things can get a little complicated (at times we thought we had been transported to Visual Basic), a thorough tutorial is included, along with context-specific help, which should help bring you up to speed in no time. IBM, $54.95



Klik 'n Play

Litil Divil (Philips Interactive)

It seems only fair that **Gremlin** should have developed this game about a charming Litil Divil (to be spoken reverently with an Irish accent) for **Philips Interactive**. As Mutt, you wander around in an adventure where even the arcade se-

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quences resemble animated cartoons. Five levels of humorous, brain and wrist-challenging action face our hero as he jumps over trap doors, dodges skeleton bones, and fights an assortment of evil creatures in the Labyrinth of Chaos while searching for the Mystical Pizza of Plenty. Quite the character, Mutt will endure all kinds of bumps and bruises with good humor, although on occasion he will let the gamer know when he feels mistreated. Allow Mutt to inconveniently die (if little red demons can die), and he will experience new heights of comical agony in the throes of the wicked Entity's torture chamber. Although the action is not as fast and furious as in most arcade games, Litil Divil is well-animated and should provide more than a few chuckles for the whole family. IBM, CD-i, $49.99

Loderunner (Dynamix)

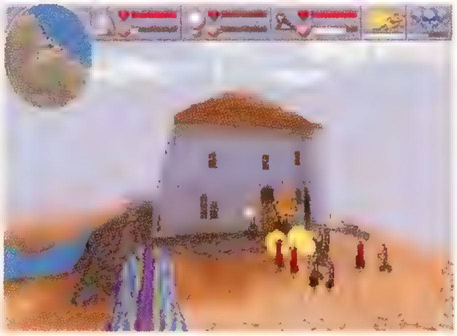
At first glance, it might be a scene from *Night Of The Living Digitized Dead*. However, Loderunner was actually one of the most outstanding action-strategy games to appear during computer gaming's early love affair with maze-chases. The hero of this challenge is a diminutive character who climbs ladders and crosses giant scaffolding in pursuit of tiny lumps of gold. His adversaries are a cast of red-cloaked zombies who slowly, yet unrelentingly, advance on the hero until he finds himself backed into a corner. His only hope is to quickly perform such actions as drilling holes through the floor in order to serve as either his own escape route, or to act as a trap into which the pursuing zombies might fall. Loderunner is a super-charged chase, mixed with rapid-fire strategic decisions and narrow escapes. Nicely upgraded to current graphic standards, the game retains the charm that made the original so addictive. There are 150 levels included in the program, with a tool kit to create your own. IBM (Windows), $45.95

Loadstar (Rocket Science)

While Loadstar may not be Wing Commander or X-Wing on rails, that is the feel of the game. Based on a movie script originally written for John Wayne, the game puts you in the cockpit of a JumpTruck, a spacecraft that uses the speed of a mag-lev railway to accelerate into space and decelerate from space. As Tully Bodine, you play the role of a legendary Outroller, or "gypsy trucker," who commits himself to smuggling a cargo of contraband camels off the moon. So, you move from rail switch to rail switch, blowing your horn to get slower traffic out of your way, shooting down SAPs (Solar System Automated Policemen) and Toasters (manned cruisers); using your shield against AXes (experimental drones with tremendous firepower), and facing down a JumpTank. To add to the space opera effect of the story, the game helps you along with your own R2-D2, a not-so-happy-faced computer named Mortimer. IBM, Sega-CD

Mad Dog II: The Lost Gold (American Laser Games)

Your six-shooting skills will be put to the test in this movie-style shooting game. As in Mad Dog McCree, the original Western shoot 'em up game, you play the White Hat gunman who is trackin' the most ornery cuss in the wilderness. Three different tour guides will offer three different gameplay paths in your search for a stash of gold that would make investment bankers stammer. We liked the quick action, and the three different paths lend the game some replay value. After a while, though, playing the game becomes more of a memory exercise than pure action, as you try to remember where the bad guys will come from. Even though the live video is sometimes heavily pixelated, this arcade game convert still offers you the next best thing to being in a Western. IBM CD, $39.95


Magic Carpet

Magic Carpet (Electronic Arts)

The legendary magic carpet carries the dream of being borne aloft to sail wherever you choose, to rediscover the world from a dramatically new perspective. Magic Carpet delivers the dream, and many others with it. The dream of soaring quickly over realistic 3D landscapes and hovering amidst primitive villagers uttering a strange language. The dream of building an enormous palace guarded by stealthy soldiers armed with crossbows. The dream of wreaking tremendous destruction with magical powers like lightning bolts and streams of fire. And finally, the ability to reshape the earth itself, by gouging massive canyons from steep hillsides or raising instant volcanoes that spit down burning rocks upon your enemies. Magic Carpet is this and more, a fast-paced action flyer that pits you against AI wizards or up to eight other players across a network. It's an imaginative, engrossing and visually mesmerizing experience that may be as transcendent as the dream itself. IBM, $59.95.

Metaltech: Earth Siege (Dynamix)

Sierra's foray into the battle mech arena, eagerly and anxiously anticipated, looks like it might meet high expectations. This is not just an overblown game of Battletank, with the action somehow realistically simulating a completely fictional subject matter. Defending the earth from within these gargantuan steel behemoths will require you to complete complex missions using more than great wrist action. Thankfully, an arsenal chock full of enough weapons to make Giant Robot's creaky joints shudder is at your disposal. Career and action modes allow you to fight a campaign game or individual battles. Be prepared: the first time you fight in formation, you'll be mesmerized. Metaltech is very attractive, with each 'mech rendered in high enough detail to make the original Japanimators envious. IBM, $59.95

Operation Body Count (Capstone)

The final version of Operation Body Count has dropped some of the more cliché trappings we noted in our "Doom Toos" survey (*CGW* #124), such as the shouts of "Allah!" and other, more unintelligible expletives in a Middle Eastern tongue, but it is still a Doom-alike set in the U.N. Tower. Some of the quirks, like the booby-trapped health packs, will confuse those more used to Doom. Nonetheless, there are some unique features to Body Count, particularly the oft-requested flame-thrower. Fellow commandos occasionally pop up and lend a hand—always useful when searching corners in dark hallways. The sound effects accentuate the carnage, as walls are riddled with bullet-holes and win-

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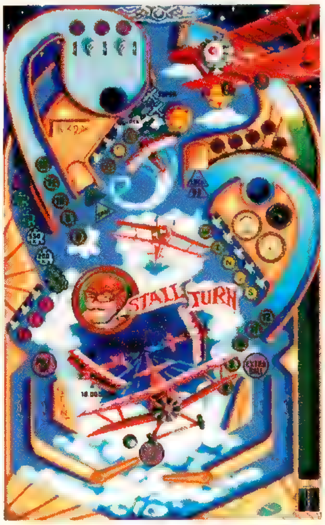
dows are reduced to glass shards. For the action gamer who has already exhausted Doom II, this could make for some holiday mayhem. IBM, $59.95

Pinball Arcade CD-ROM (21st Century)

A collection of eight pinball machines, this CD-ROM also includes an informational database detailing a wide variety of coin-op machines. Pinball wizards may be disappointed with the repetitive styles in the included games, which are heavy on ramps and passages, with a lack of multi-ball play. One-third of the playing surface is shown at a time, and although the screen smoothly scrolls to follow the ball, this feature can foul up strategic play. In addition to the action, this CD-ROM features an "Illustrated History of Pinball" containing photographs and stories about classic pinballs of the past and present. Despite ordinary graphics and fairly average sounds, Pinball Arcade is quick-hitting fun, and will keep players riveted to their seat as they try "just one more time" to beat their last score. IBM CD, $49.95


Pinball Arcade CD

Prince of Persia II (Broderbund)

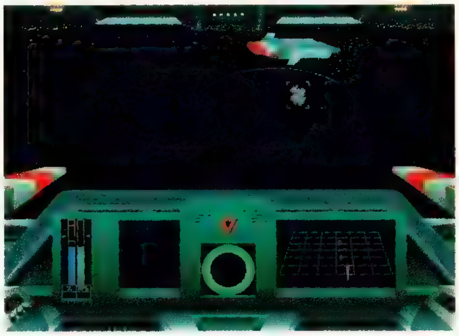
Cast out of the IBM world, the Prince must brave the dangers of Macintosh caverns armed with naught but his trusty scimitar, his quickness and hits wits. Secret doors hide in lush surroundings, while the musical score attempts to rush the Prince into being hasty, so that he might trigger an enormous slashing blade of death. Skeletons move as if animated by the ghost of Hollywood's premier stop-action animator, Ray Harryhausen, and disembodied heads await the unwary in dark places with visages terrible to behold. This white-knuckle action game is even better on the Mac than on the IBM, which won a *CGW Premier* award earlier this year. Mac, $29.95

Quarantine (Gametek)

As a driver of an excessively armed taxi, you leave Hell Cab behind in this 3D combat game. Don't expect NASCAR with guns—this is more along the lines of Car Wars meets Doom. Land mines, tire spikes, machine guns and flame-throwers allow you to take the paint off other vehicles in more ways than one. The fares come from passengers who are less interested in going home than in enlisting you to perform a hit on some unsuspecting passers-by, while they gleefully watch from the back seat of your taxi. The freedom of action is such that you may even torch your potential fares—with nary a police car in sight. Although there does seem to be a plot of sorts, most players will be too busy hurtling down alleys at 100 miles per hour and casually taking out pedestrians to notice. For the inside track, see the full review in this issue. IBM, $49.95

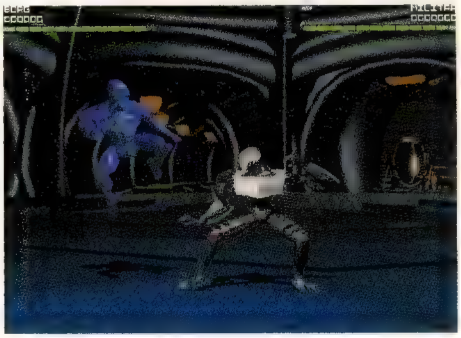
Renegade (SSI)

Renegade is another space combat game, replete with a formidable variety of tractor beams, shields and weapons. The plotline was still in development in the early version we saw, but what we did see suggested that Renegade is very different than most space combat games, since it places less emphasis on character and depth of story. The focus is strictly upon action, and the game features an interesting tracking and targeting system to assist you in finding that action. The biggest difficulty for this product is the somewhat dated look, as the polygon-based ships are not Gouraud-shaded as is the norm in this genre. However, this does allow for a high frame rate, which should appeal to joystick jocks needing a quick sci-fi fix. IBM, $59.95


Renegade

Rise of the Robots (Time-Warner)

Should this product finally make it to market, it has the potential to change a lot of pre-conceived notions about fighting games on the PC. The incredible 3D-rendered graphics and swift, fluid animation leave such products as Street Fighter and Mortal Kombat far behind. You portray Cyborg, a mechanical avenger sent on a mission to liberate a futuristic manufacturing plant from the clutches of the nefarious Supervisor, an all-powerful robot turned egomaniac. Arcade veterans will feel right at home as they fight a bevy of mechanical opponents, each with their own skill and intelligence levels, by using the standard assortment of kicks, punches and super attacks. Although the gameplay is little different from the scads of other fighter games out there, Rise of the Robots' great graphics engine alone could find it a home on several hard drives. IBM, $49.95


Rise Of The Robots

Rise of the Triad (Apogee)

A very user-friendly product, this ambitious design allows for both two-player modem play and up to 11(!) players in network shoot-'em-ups. The texture-mapping is slick and professional. Explosions and gunfire bursts have an aura of realism, enhanced by the rich bits of audio, which include the best shattering glass sounds we've heard. The game is built around numerous special effects, such as the whirling turbines of death and the trampolines which seem to bounce you around forever in Triad's deadly world. The plot revolves around some fascists who want to take over the free world for their own nefarious, but unexplained, purposes. The good news is that you get to do what the CIA seemingly cannot do anymore—take them out at gun point. If

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2

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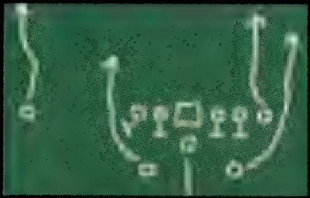

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bashing neo-Nazis is your favorite pastime, Triad will offer you a fine first-person blast-fest. IBM, $69.95.

Spectre VR (Velocity)

The popular Mac classic has finally been ported over to the PC. Fast-paced action gives this cosmic game of Capture the Flag virtually the same flavor as the Mac version, although it does seem a little slower. Texture-mapped polygon enemies make for an interesting look and feel, and while the single player game wore on us (get flags, destroy enemies), the multiplayer arena impressed us. Currently available over phone lines or NETBIOS (IPX is being developed in a future patch), Spectre VR is a lot more fun when you're duking it out with your friends in cyberspace. Although not quite as good, or as personal as Network DOOM, there are several different "games" you can play in cyberspace, which makes for an enjoyable change of pace. IBM, $79.95

Star Crusader (Take 2)

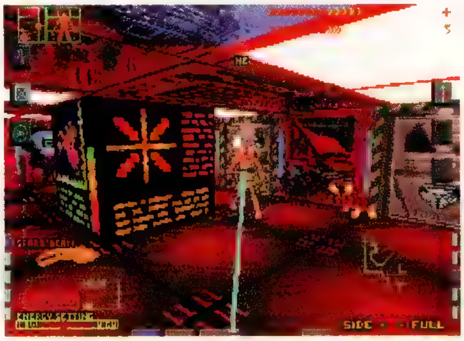
The excellence of its flight engine and rich storyline make Star Crusader stand out in the crowded field of space combat sims. Boasting the latest in Gouraud and Phong shading techniques and a rich color palette, the ships are quite unlike anything else seen onscreen. While owners of medium-range 386 machines may play the game, Star Crusader comes alive on a swift 486, with a frame rate comparable to more "serious" simulators. The various starfaring races seem truly alien, and each has its own agenda, making for some of the best NPC play yet in an action game. The inevitable cut scenes are not only better-acted than most in the genre, they also force the player to make moral choices, rather than offering the typical good guy/bad guy scenario. The CD version features excellent voice-overs from first-rate actors, in addition to enhanced sound effects. In the midst of the 100-plus missions, the player eventually progresses to the rank of admiral, where he may direct other missions on a strategic map, another unusual twist for a space action game. IBM, $69.99

Street Fighter Series (HiTech)

This CD-ROM bundle includes Street Fighter and Street Fighter 2, the two games that started the madness, to satiate the arcade thirst of the PC gamer. While the graphics and sounds are just like the 16-bit versions, the action is a little slower, and it is far more difficult to perform the various moves you'll need to truly kick butt and take names. For some reason, four-button joysticks are not supported, and you don't know the meaning of the term Carpal Tunnel Syndrome until you've used the keyboard to play this game. Although these two games are a little outdated now, even by arcade standards, it is still fun to fight as Blanca the mega troll, and the two player action is good. The two "bonus" games, Megaman and Megaman 3, are not even worth talking about. IBM, $29.95

System Shock (Origin)

By melding the razor-sharp world of cyberpunk with an action-filled first person adventure, Origin has come up with a game that looks and plays like Doom, but feels like an SF flick. You will marvel at the physics-based 3D environment as you attempt to stop the all-powerful SHODAN from (what else?) destroying the Earth. At first, we were a little intimidated by the interface. Since you can completely interact with the environment, the game is naturally a little more complicated than the usual blast-fest. We quickly got the hang of it, though, and have been hooked ever since. For a more systematic synopsis of System Shock, see this issue's review. IBM, $79.95



System Shock

Troubled Souls (MacSoft)

If the names of H.R. Giger and Hieronymous Bosch mean anything to you, you will instantly recognize the art style used in this bizarre little arcade game. Troubled Souls is a cross between Tetris and Pipe Dream in that ordinary pipes, pipes with eyeballs, and joints that look vaguely like worms appear in a glass tube and are placed on the main playing field (skeletal remains on a deep purple background) via point and click. The goal is to create circles with the parts in order to make them disappear. By doing so, you are saving some of Bosch's tortured souls from eternal suffering. Like Tetris, the round ends when the glass tube is filled with parts (body or otherwise). Each time the tube is filled, one soul disappears forever into perdition. When you lose the third soul, you lose the game. Macintosh.

Wing Commander Armada (Origin)

Instead of Wing Commander 2 1/2, what we have here is a WC-type space shoot-out, overlaid with a strategic game. Players take the role of either Kilrathi or Confederation, maneuvering carriers and fighters to take control of strategic star systems. The ship graphics are superb, especially close-up, and the frame rate is acceptable on most machines. The program also doesn't take up the usual 30-40 megabytes of storage on the hard drive. Of course, it probably would be better if it did, since the AI is considerably lacking in comparison to earlier Wing Commander products. On the other hand, any hotshot pilot with a modem can take on another live human ace, something veteran space jockeys have desired for millennia. They might also want to jump to the full review, elsewhere in this issue. IBM, $59.95

Wing Commander III (Origin)

One of the most anticipated titles of the holiday season, Wing Commander III demands instant attention because of its live-action cinematic sequences featuring such high-profile acting talent as Mark Hamill, Malcolm McDowell and John-Rhys Davies. The nice news for gamers is that the huge budget seems to have not only enhanced the cinematics, but the

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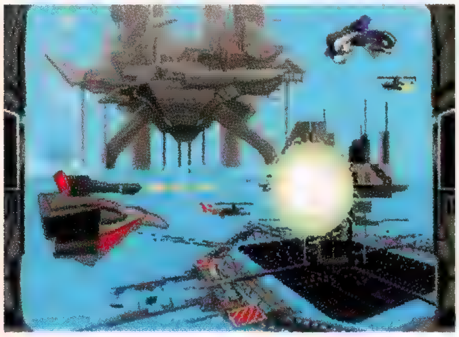
flight model as well. Now Confederation pilots may fly and fight Kilrathi in a true 3D environment, with ship graphics significantly better than even those found on the Wing Commander Armada screen. All of the captured Kilrathi secrets are laid bare in this issue's special sneak preview. IBM.

X-Wing Collector CD (LucasArts)

Perhaps Imperial agents have uncovered hidden data that X-Wing failed to control the entire PC galaxy. Or it could simply be that the Rebels are striking back after the release of Tie Fighter. This Collector's CD brings together X-Wing, B-Wing and Imperial Pursuit with the gouraud shading techniques used in Tie Fighter, and adds six new missions to boot. The digital sounds are a vast improvement over the FM synthesized music, with screaming X-Wings now whizzing from one speaker to the other and the stereo panning adding tremendously to the experience. The CD is also notable for the digitized voice talent of Clive Revill (the Emperor in *The Empire Strikes Back*) and Erik Bowersfield, who reprises his role of Admiral Ackbar. IBM, $49.95

Zephyr (New World)

In the 24th century, competition between corporations will become so intense that businesses will engage in open warfare. The featured hardware is the Zephyr, a super-hovertank which conjures up memories of Steve Jackson's old GEVs and Ogres. Armed with a death-dealing arsenal of pulse cannons, missiles, gatling guns, mines and even nitro bombs, the Zephyr is a sleek and powerful action gamer's dream. Excellent animation, a number of different combat arenas, and a simple interface make Zephyr easier to get a handle on than a nuke at a galactic turkey shoot. While the pounding soundtrack may get on some warrior's nerves, the digitized speech of the CD-ROM version is a welcome touch. The AI is still being tweaked at press time, but Zephyr's true appeal is its support of network and modem play. IBM, $79.95



Zephyr

ADVENTURE/ ROLE-PLAYING

Beneath A Steel Sky (Virgin)

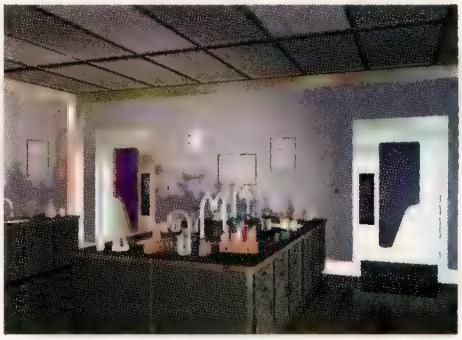
In an Orwellian future, a man is unjustly accused and avoids capture while attempting to prove his innocence. Is this Hitchcock doing a remake of *1984*? Not exactly, for Big Brother has been changed to Big Business, and Union City is a claustrophobic tangle of steel, glass, sewers and hiding places. Beneath A Steel Sky is very British and revels in that fact, as shown by the spirited English actors and dialogue that is often so fork-tongued you almost believe you're in the middle of a *Benny Hill* skit. The graphics, unintentionally or not, have a sparse, *1984*-kind of look, which only adds to the bizarre atmosphere, as does the near-transparent interface. Fairly simple to finish, this is just the thing for Anglophiles and lovers of futuristic mysteries on either side of the Atlantic. For more clues, check out the full review coverage in *CGW* #124. IBM, $69.95

Blind Date (Trimark)

A seeming Doublemint twin to Tsunami's earlier Man Enough, Blind Date matches the beau hopeful with a lovely young lady for some verbal fencing and frustration. Though you are limited to a single date on one night, you'll be treated to some hilarious exchanges that don't insult your intelligence. But it comes down to this: if you have enough money to get her sauced, take her home, survive her many contrived traps, pass a silly "test" in her closet and a near-death-by-fright experience with her obese roommate, she turns off the bedroom light and that's it for her. All that remains are three rather less encumbered roommates. End of story: no glorious night of passionate writhing with the object of your desire, just C-grade voyeurism of women with no relation to the "story." If you enjoy pointed repartee with an unassailable siren, don't be shy; but if you expect more for your money, keep it in your wallet. IBM CD-ROM, $49.95

Blown Away (MGM)

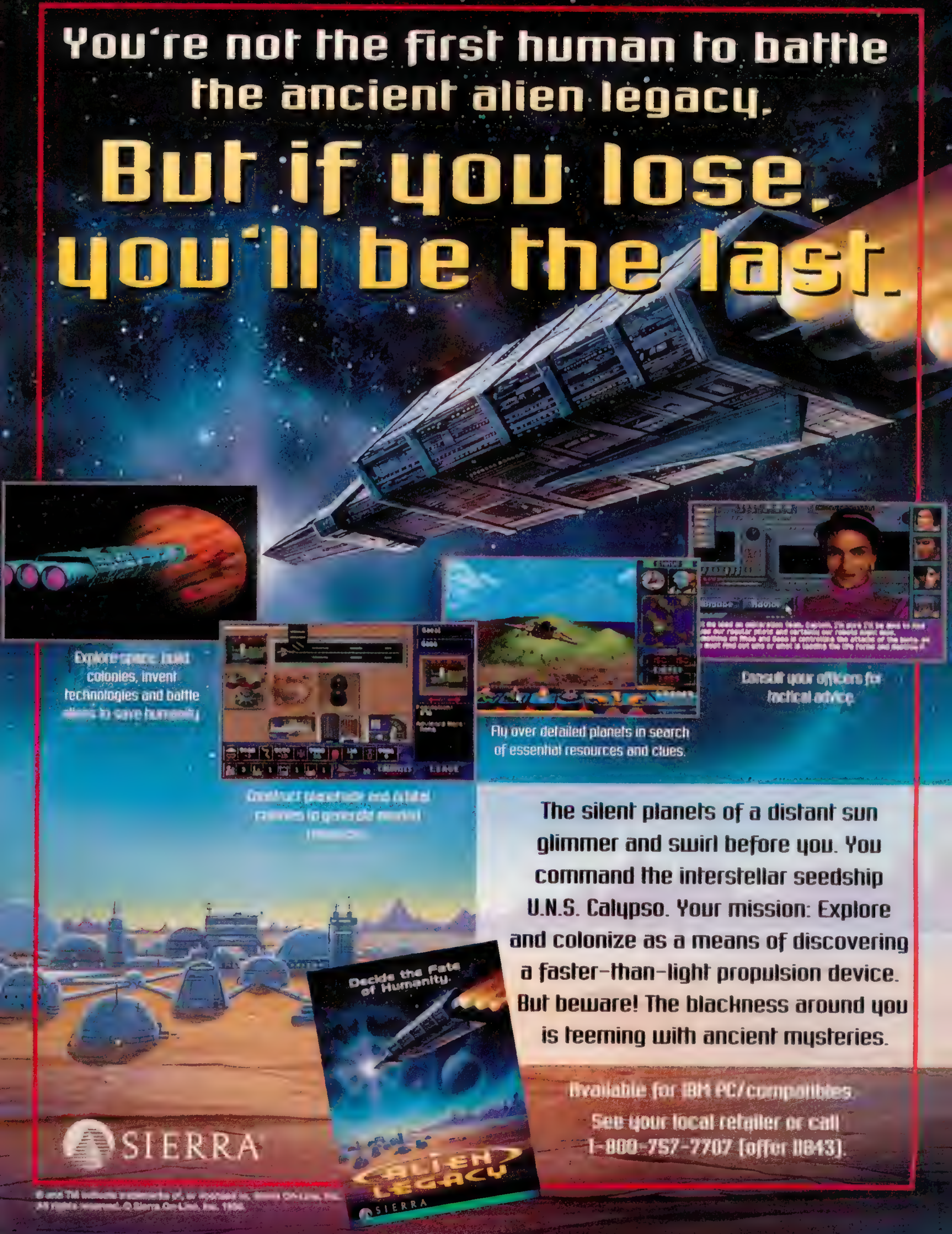
MGM's first chip into the multi-media salsa is a puzzle game that picks up the pieces from MGM/UA's pyro-maniacal movie of the same name. The player takes the persona of a bomb squad expert who must defeat a disciple of the movie's bomb master, Gaerity. The bad guy has abducted your loved ones, and is planning an explosive reception for the President, so you'll have to solve more than 15 delightfully devious puzzles to go to bed a hero. Using Intel's video compression/decompression technology, the game incorporates many full-screen digitized, slightly pixelated scenes of action, stunts and special effects. The puzzles vary in difficulty, but only a few are simple enough to solve quickly. Some, such as a lab where you direct colored fluids through complex glass piping with a number of valves, are rendered in 3D and look very slick. One nice touch is that each time you play, the solutions for each puzzle will randomly change. If puzzle games with lots of video-generated atmosphere is your thing, you might try getting Blown Away this Christmas season. IBM, $59.00



Blown Away

Citadel of the Dead (Affiliate Venture Publishing)

Step-by-step, inch-by-inch, we searched the dungeon in this colorful corridor crawl reminiscent of the early Might & Magic games. Citadel of the Dead is a hack 'n slash Foozle hunt where you chase through 13 levels of monsters, hack through your share of evil creatures, and then, find yourself in the final death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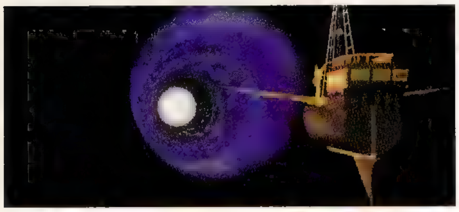
match with the Wizard Kraelich. Characters are easy to roll; there is a nice mix of races and character classes; and the interface takes full advantage of the Macintosh's strengths. Indeed, all inventory management, combat and spellcasting is handled via the Holy Trinity of Interfaces—point, click and drag. Unfortunately, this is one of those games where you run through torches faster than pyromaniacs can strike matches in an abandoned warehouse. So, those who feel inventory consumption intrudes into gameplay should avoid this game. Those who simply want to slay monsters in phased combat might take a stab at it. Macintosh

Dark Sun: Wake of the Ravager (SSI)

If you thought it got hot in the Mojave Desert, wait until you venture into Strategic Simulations' Dark Sun game world. A plotline that SSI claims will take between 50-100 hours to complete awaits you. Although some gamers might find the plot a little too heavy on the "bring me the +1 fish stick before I give you the talisman" side, there is a lot of challenging gameplay here. The interface is also refreshing in that all gameplay takes place in the same "view" with a simple point and click interface. While this perspective does have its disadvantages (such as when you "lose" your little Halfling thief behind your huge Half-giant fighter), at least adventurers won't have to endure combat mode, underground mode, or any other time-consuming, superfluous modes that role-playing games are wont to affect. The graphics are solid, and the soundtrack is absolutely incredible, really setting the mood for the game. If you can get past the stiff system requirements (SSI recommends a 486/50 MHz), you might find this RPG will melt away those snowy winter nights. IBM CD, $64.95



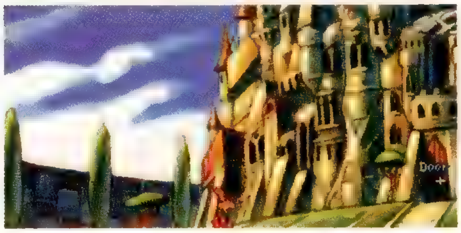
Death Gate

Death Gate (Legend)

As with any adaptation to a different medium, some of the details from the literary work failed to make it into the game. In particular, fans of Weis and Hickman's novels may be disappointed that there is a lack of the moral ambiguity which made Haplo, the main protagonist, such an intriguing character. What the game does offer is a chance for new experiences in a familiar world, featuring some of the best conversations with NPCs we've heard in a long time. The essence of rune magic is conveyed both through storyline and delightful visuals, as magical patterns are constructed from basic runes. The puzzles are better than those found in Companions of Xanth, striking a good balance between puzzles solved by rune magic and those solved by using physical objects. The animation is nice throughout, and the 3D Studio work in the opening credits combines with the John Boorman-like credits to give the game an almost cinematic feel. Not a slavish copy of the novels, but a work which manages to stand on its own. IBM, $59.95

Discworld (Psygnosis)

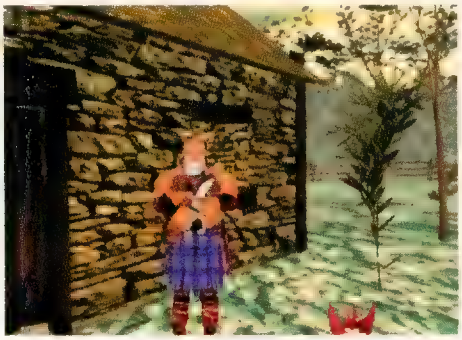
The Discworld, according to novelist Terry Pratchett, is a flat disc traveling through the cosmos on the back of a giant turtle. We thought that Pratchett's best-selling blend of humor, myth and downright insanity would be a tough translation to the computer medium, but the design team managed to come up with a masterstroke by casting Eric Idle (of Monty Python fame) as Rincewind, the offbeat wizard and star of the game. Idle's sense of comedic timing and near-effortless ad-libs spark the comedic script, aided by a near-transparent interface. Rincewind's magic carpet bag steals several scenes while saving its master from a host of hilarious dangers, and the rest of the supporting cast adds to the fun. The numerous puzzles range from simple to moderate and are surprisingly logical—once you adopt the proper mindset. Although Discworld isn't meant to be serious, the game world offers plenty of room to explore, which should keep even veteran adventurers happy. IBM



Discworld

Dragon Lore (Mindscape)

Unlike many fantasy adventure games, the world of Dragon Lore is rooted in more than just the typical European medieval setting. Dragons are not only powerful, intelligent creatures, they trace their lineage back to the Great Wyrm of ancient myth, and the dreams of dragonkind form the basis for all reality as we know it. It seems that sometimes, the dragons have nightmares, and evil runs rampant over the world. Set in what appears to be an alternate Bavaria, the story centers around Werner von Wallenrod, son of the greatest of Dragon Knights, who must avenge his father's death and bring peace to the land. The 3D Studio work is detailed, with a lot more freedom to move about than in many intense graphic worlds, and the combat system is simple and fluid. But it's the depth of the game world which will capture gamers' imagination, as they meet with Sea Folk, Elves, Troggs and even Ice Dragons, in an attempt to unravel the mysteries of the Dragon Dream. IBM (2 CDs), $89.95



Dragon Lore

Dreamweb (Empire)

From its dark background palette to its gritty dialogue and *film noire* violence, Dreamweb jacks gamers into a dark plot where they must crack the mystery of the "Dreamweb." More than just the ultimate network, however, the "Dreamweb" is a massive conspiracy which you have to stop by using some questionable means (i.e. breaking and entry, jacking into computer networks, and ruthlessly murdering seeming innocents). The view is from a top-down perspective and the interface is fairly straight-forward. Yet, the somewhat dated graphics and the deceptively simple mechanics may work against its success with sophisticated gamers who want a game with more

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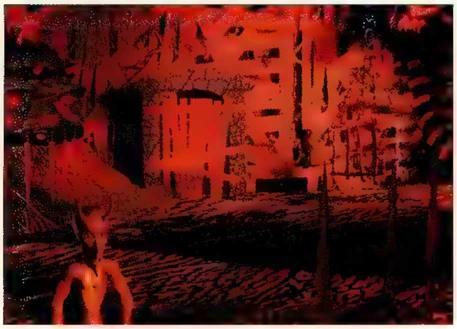
complexity. To look further into the mystery, see the review in this issue. IBM, $59.95

Dungeon Master II (Interplay)

Theron...it is time...time for you to return to the Hall of Champions. E'en though the Grey Lords were restored to rightful power aeons ago, your work is not yet done. Unlock the heroes and heroines from the stasis chambers and go forth, four staunch champions to combat the new evils which beset the world. Your return from the mundane plane of your normal existence should find our world more vivid and colorful than in Amiga days of yore—the sounds more rich, the screams more terrifying than before with MIDI music support. But beware, for the lands are rent asunder by tumultuous storms, and obscured by thick fog. Many more creatures stalk the countryside, or hide in pitch-black caverns, their terrible jaws clenched in anticipation of unwary prey. Expect no mere dungeon crawl, for you will have to learn new incantations and methods of combat to triumph in your noble task this time around. Return to the lands which enchanted you during the discontent of your winter, and rejoice that RPGs have returned to reward the True Believers. IBM, $59.95


Hell

The Goldtree Engine (Goldtree Enterprises)

Isn't it embarrassing when you plan a fantasy role-playing adventure with more than enough lively encounters and the group decides to enter that building you never fleshed out? Your notes describe it as "Generic Tavern—Fill in details later," "Candle shop—no info," or "Abandoned Warehouse—details to come." You have a vague idea of what you wanted to put in there, but you find yourself creating names and characters on the fly. The Goldtree Engine is a friendly database that helps you organize city-based campaigns for your "people & paper" role-playing games. It integrates building sheets, inventories, character sheets, character histories, combat rules and monster manuals into one integrated unit so that you no longer have to carry 2D12 worth of file folders and rule books to every gaming session. The default city and playing system follows fantasy RPG conventions, but the system is customizable enough that you can adapt it for GURPS, Dark Conspiracy, Shadowrun, or whatever you're playing. IBM, $44.95

The Heaven Sword and The Dragon Sabre (Soft World)

This Chinese adventure game reminds us of Japanese anime. In fact, it's something like an episode of *Speed Racer*. Even though there is only a minimal story line and you can barely understand the English, you somehow keep watching. This CD-ROM has been imported directly from the East, which means that there are a host of faulty translations and broken grammar. While this occasionally hindered our understanding of the story line, we were still able to understand enough to successfully get through the linear plot, which, like many an old samurai film, involves helping young Zang Wuzih, master Kung Fu artist, and avenge his parents' deaths. It is hard to overlook the similarities between The Heaven Sword and the many anime RPGs that exist for the Sega Genesis and Super Nintendo platforms, but surprisingly, this game held our attention span with its simple quick-hitting style. Although the graphics are average and there is no speech on the CD-ROM (if there were, it would be even more like a Speed Racer episode), this game serves as a pleasant example of another culture's taste in adventure games. IBM

Hell (Take 2)

Washington D.C. is the infernal setting for this futuristic cyberpunk adventure. The 3D Studio modeling and SVGA graphics combine to create an eerie atmosphere for this strange, yet fascinating game. As one of two officers on whom unsuccessful "scrubs" (elimination) were attempted, you'll meet a wide cast of unusual characters played by such distinguished talent as Dennis Hopper and Grace Jones. Most of the characters are garrulous and interesting enough that discussions may be replayed, vital lest you miss an important clue. The cinematic feel adds to the more mature feel of the game, and the best surprise of all is that the plot, puzzles and conversations do seem to combine into a good gaming experience. Overall, one of the best-looking titles from "Siliwood" for the upcoming holiday season. IBM, $59.95

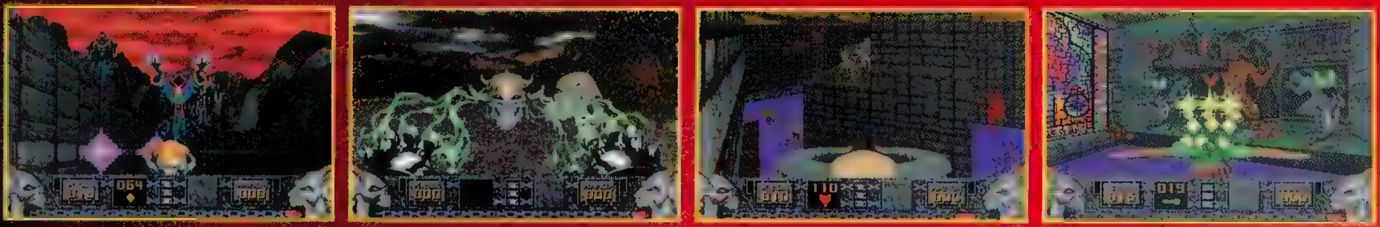
Ishar 3: The Seven Gates Of Infinity (Readysoft)

When Typhus Mernith speaks of a Great Conjunction and the evil it portends, veterans of the first two Ishar campaigns and would-be heroes of the third must gather to save the magical land of Kendoria. With graphics and real-time combat in the style of the Elvira series and sound effects which far surpass that series, Ishar 3 is a CRPG for gamers who love blood, gore and death. The adventuring party can be imported from past games or created from the standard assortment of humans, elves, and dwarves, with the interesting addition of lizardmen and orcs (although they all have the same number of attribute points to disperse and the character classes themselves are all the old familiar ones). Then, it's onward to the initial mission where you navigate through the Byzantine labyrinth of a medieval street map and learn the awkward combat interface by facing dangerous thugs and hostile citizens. IBM, Mac, $59.95

Inventory
Jorune
Memories
Tracker
Jorune: Alien Logic

Jorune: Alien Logic (SSI)

As a board game, Jorune was respected for the depth of its futuristic fantasy world. This version from Strategic Simulations is replete with the sort of creative ingenuity one would expect from one of the leading Adventure/RPG makers in the industry, while still staying true to its pen-and-paper roots. The plotline finds you as a



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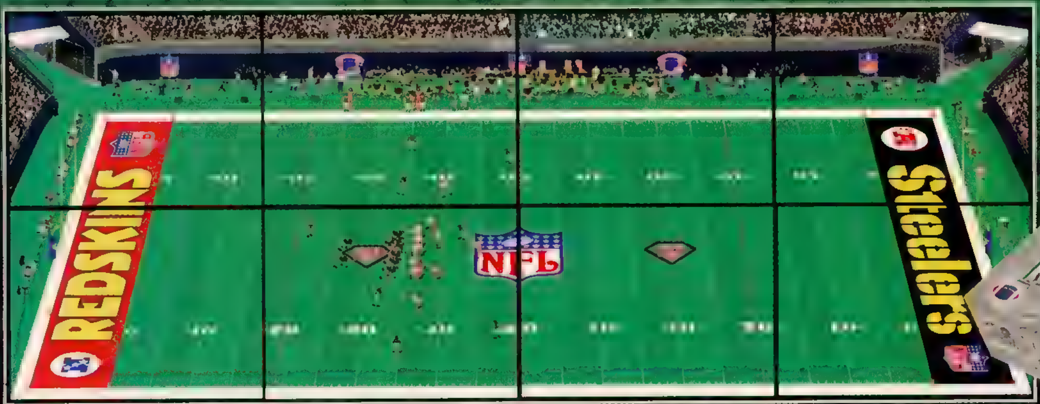
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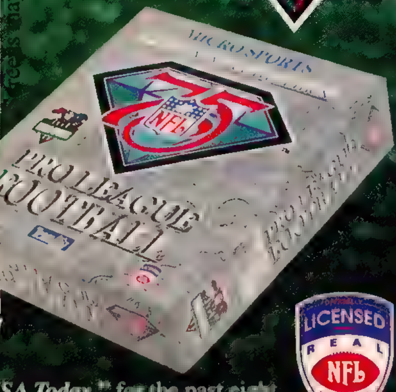
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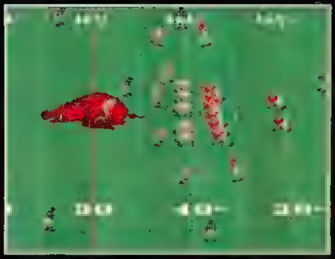
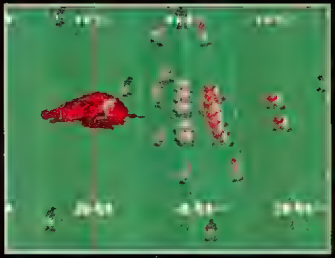
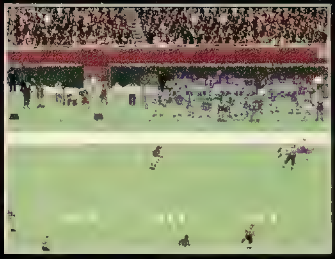
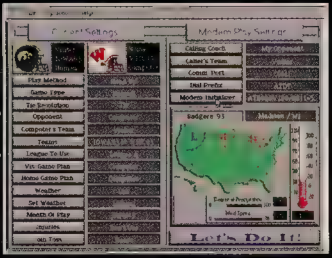
Photo by Bill Shipley





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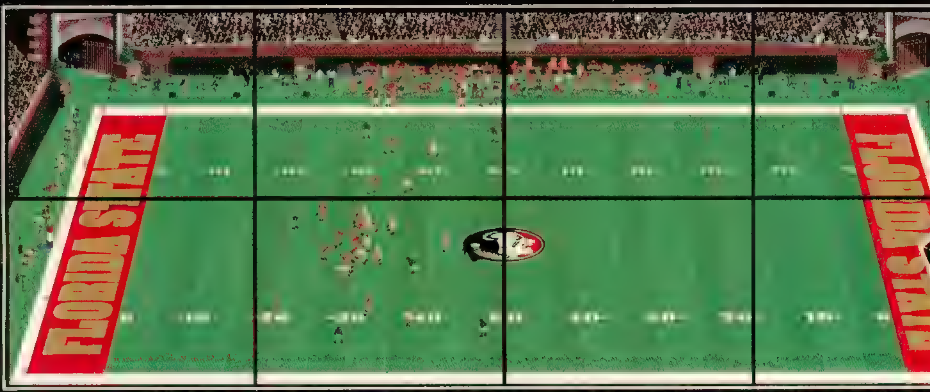
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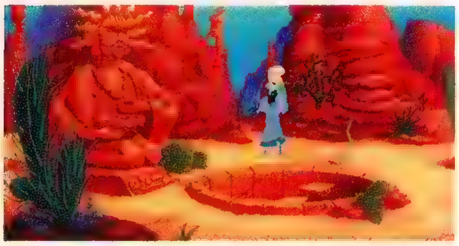
young explorer on the planet Jorune, who stumbles upon a plot that threatens the very existence of your planet. To negate this threat, you must traverse a gorgeous SVGA-rendered world. Helping you in your quest are magical powers, weapons, and unique biomechanical droids that can be custom-created. In the action mode, you fight evil adversaries and jump chasms in a nod to arcade action which stops short of being another Ultima VIII. In any case, the world of Jorune is filled with enough adventure to keep both old and new RPG'ers busy for quite a while this winter. IBM, $49.95

King's Quest VII (Sierra On-Line)

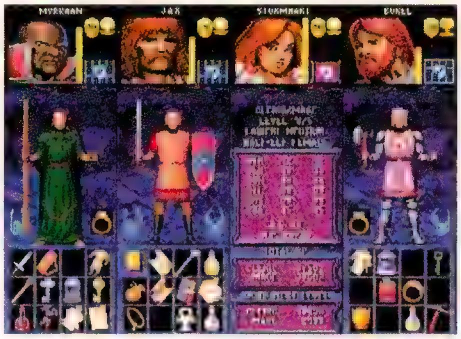
Subtitled *The Princeless Bride*, the latest of game designer Roberta Williams' fantasies finds Rosella resisting the idea of marriage. During a discussion with her mother, Valanice, Rosella is enchanted by a mystical pool, and jumping in, finds herself in another dimension. The player gets to portray both Rosella and Valanice alternately, where the mother tries to find her daughter, and Rosella must escape various magical and physical threats. Even more fairy tale-like than the previous games in the series, King's Quest VII features the evil witch Malicia, a Troll-King, the Lady of Dreams, and the aptly-titled Nonsense Land, among other delights. We cannot comment on the quality of the voice acting, which was unavailable at press time. The graphics are simply stunning, however, and feature quality cel animation, rivaling that of animated feature films. IBM, $79.95



King's Quest VII

Legend Of Kyrandia 3: Malcolm's Revenge (Virgin)

If the idea of a hero wearing colored tights, a jester's hat, and a wicked disposition appeals to you, check out this title. Picking up a few years after the events in Kyrandia 2, Malcolm, our antagonistic jester-turned-main-character, breaks out of his stone statue encasement hell-bent on revenge. Malcolm's Revenge has a funky neo-Flintstonian look, as well as the great comical style we've come to expect from the Kyrandia series. You'll strain your brain right from the start as you and Malcolm get even for all that time he spent as a statue. Populated with a bevy of off-the wall characters, the world is made much more enjoyable by the better-than-average voice acting on the CD-ROM version. The manual is rendered basically superfluous by one of the most intuitive interfaces we've seen in a while. Unless you really don't like quest games with a lot of humor, you'll have a hard time resisting Kyrandia 3 this holiday season. IBM.



Menzoberranzan

Lords of Midnight (Domark)

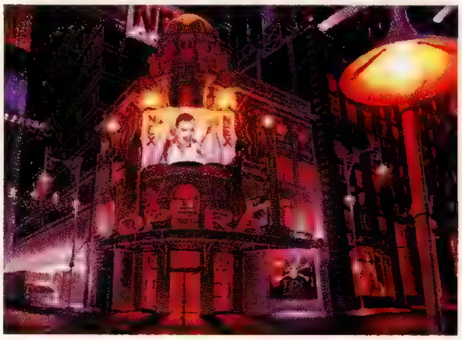
You're the chief kettle-head as you direct your hearty band of knights all over the land of Bloodmarch on a quest for The Most Powerful Talisman, as well as your kidnapped father, in what Domark claims will be a non-linear storyline. If Sir Morgrin's boring march to a boring town is, well, boring, you can instantly take control of someone else. Put the monotonous march on auto-pilot and go fly a dragon with Sir Amarin. And as you march around with your knight of the day, you'll experience complete range of motion, from looking up and down to slugging it out with the enemy with your sword and shield. The real-time adventuring and some nice cinematic techniques give Lords of Midnight a fresh look for Adventure/Role-players this Christmas. IBM, $79.95

Menzoberranzan (SSI)

Based on R. A. Salvatore's best-selling novels about the Drow (*The Legacy*, *Starless Night*, and *Siege of Darkness*), this Forgotten Realms role-playing game features Dark Elves as heroes. However, instead of playing Salvatore's hero, Drizzt DoUrden, you create your own Drow characters and maneuver through Salvatore's dark universe via an interface that is essentially identical to the Ravenloft game published earlier this year. The look is updated somewhat from earlier SSI AD&D releases, with better use of first-person graphics. Gamers with sound cards will experience voice-overs in addition to the on-screen text, but, unfortunately, the acting performances leave plenty to be desired. Still, for those interested in the Drow, Menzoberranzan offers lots of answers concerning their mysterious history. IBM, $64.95

Noctropolis (EA)

Ever want to step into the world of your favorite comic book and become the superhero of your fantasies? Such is the opportunity for Peter Grey, your on-screen persona, in this interactive movie. Peter gets to become Darksheer, his favorite comic hero, and join with the voluptuous superheroine, Stiletto, in a battle against the archnemesis Flux and his evil cronies. The game uses digitized video superimposed over lavish backgrounds worthy of the finest graphic novels. Once you leave the mundane world of Peter's office and enter the Noctropolis of his favorite comic books, the interiors are diverse and detailed, while the dark, foreboding skylines of the city would satisfy the dark visions of even Tim Burton. The pop-up interface is easy to use and the soundtrack is sufficiently mysterious to set the tone for this epic confrontation between your larger-than-life hero and his more-dangerous-than-death nemesis. DOS, $59.95



Noctropolis

Relentless (EA)

The initial impression of the graphics in Relentless is that Playskool characters are trucking across a Lego-landscape. The next impression is that this is a unique-looking game with a unique inter-

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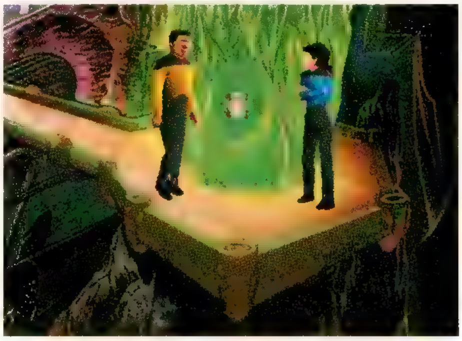
face. You navigate a Quetch, a member of an oppressed race on another planet, via four attitudes: Aggressive, Normal, Athletic and Sneaky. The interface allows you to switch between these demeanors at will, and the stance you take will determine how you will solve a puzzle. As noted in last issue's Beta Bits column, Normal mode usually precipitates conversation; Aggressive mode usually lands you in combat; Athletic lets you leap over obstacles in a single bound; and Sneaky helps you sidle by your enemies. The point of all this: rescue Princess Sendell and foil the plans of the evil Dr. FunFrock. IBM $59.95

Stonekeep (Interplay)

As we write, the elves at Interplay are working feverishly to finish this long-awaited, mammoth RPG. As mentioned in our recent cover story (*CGW* #123), Stonekeep is a full-screen, scrolling dungeon plunge with some of the best graphic effects we've seen in the genre. Although the story is nothing new, being the trite "restore the balance of the universe" scenario, it at least will be well told (Interplay recruited noted game designers Steve Jackson and David Pulver to author the novella that comes with the game). Between the graphics and the story, our interest is piqued; all that remains is for the Interplay elves to finish the thing before Santa's sleigh hits the skies. IBM, $69.95



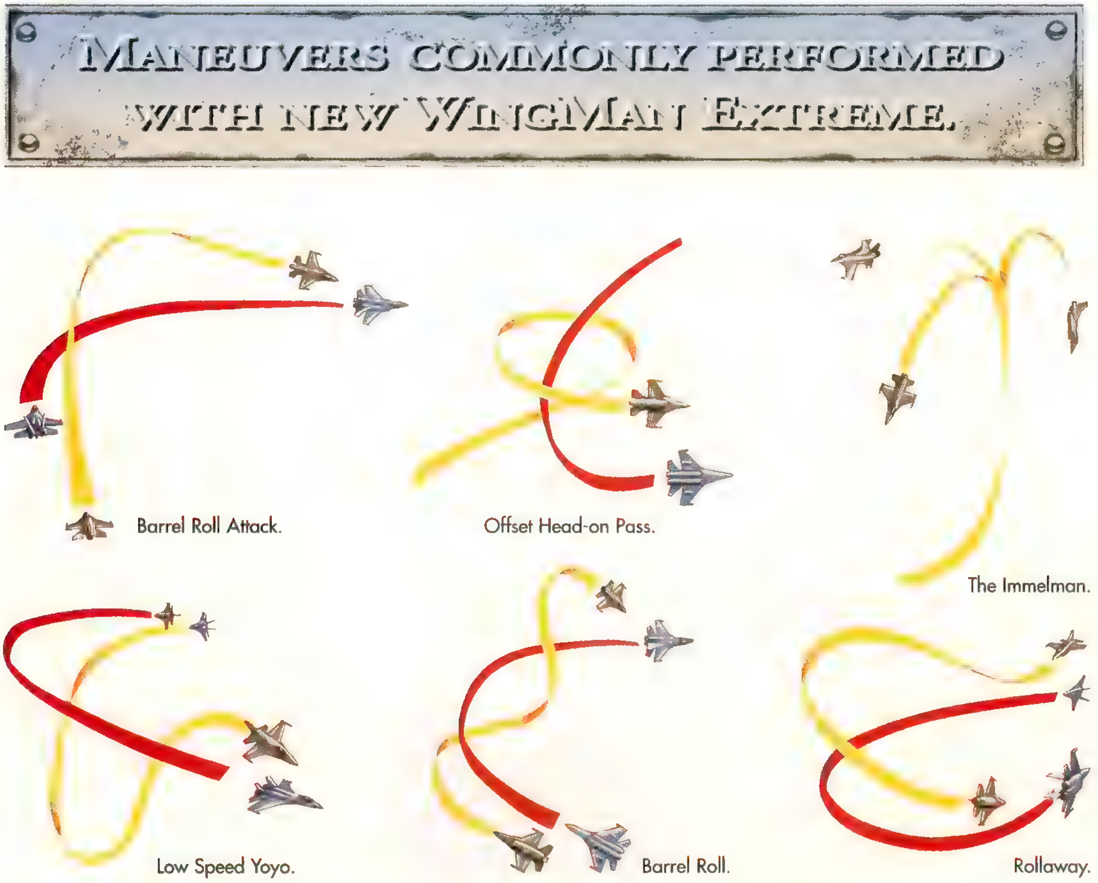
Star Trek: The Next Generation

Shadows Of Cairn (Masque Software)

A Windows/DOS game? With a modern rock musical score? You'll think you've stepped into the movie *Flash Gordon* when you play Shadows Of Cairn. A thief who has been caught hearing something he shouldn't have, you need to escape a prison and exact revenge on your tormentors in this CD-ROM action adventure game. Although pretty much your standard side-perspective adventure/arcade game, it does have some unique features. It's easy to believe that your character is a thief, as he deftly scales walls and pilfers from the pockets of the unsuspecting. But what really gives this game its flavor is the background modern rock score, which successfully blends together with the fantasy adventure theme. Although the version we saw had unspectacular graphics and voice acting, Shadows Of Cairn offers plenty of action, a little adventure, and a lot of character. IBM, $49.95

Star Trek: 25th Anniversary Enhanced CD-ROM (MacPlay)

Macintosh captains may finally warp into the *Star Trek* universe in style, summoned by the voices of the original TV show cast. While Scotty, Uhura and the rest of the bridge crew don't really have enough to do, it's still a treat to hear George Takei's voice say "Shields up, captain," or for Chekov to remark that "The enemy wessel is breaking off." Kirk, Spock and McCoy get the majority of the action, as



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they guide you through eight adventures set up similar to TV episodes, filled with the usual Klingons, Romulans and other exotic bad guys. The storylines have an authentic *Trek* feel, due to the writing of science fiction authors Liz Danforth and Mike Stackpole—noted game designers in their own right. This latest Mac version smoothes out some of the rough graphic edges of the IBM version and adds new informational screens. Also, the final episode has been changed to more than just a mindless, extended combat phase. With better character animation, Quickdraw for faster machines and a walkthrough of the first adventure, this is the most accessible *Star Trek* game to date. Mac, $59.95

Star Trek: The Next Generation (Spectrum HoloByte)

Unlike the **Interplay** *Star Trek*-licensed games, this is less of a puzzle-solving adventure game than a wide-ranging RPG. Should you choose to ignore the plot, for instance, you could spend hours flying around the galactic quadrant with the excellent navigational system, studying a variety of planets and stars. The graphics are at times breathtaking, and the sound is equally commendable, especially the voice-overs by the series cast, who deliver their lines with energy and confidence. The storyline, which centers around an ancient alien artifact, brings in the usual amount of Klingons, Ferengi and other familiar aliens. The surprise is that the script also calls for the player to make difficult moral and philosophical choices that have consequences throughout the game. Non-player characters are more interesting than those in many RPGs of late, and the entire product captures the feel of its popular subject becoming getting overly conservative or stale. Trekkers might want to time-warp into last issue's *Star Trek Games* article for more information on this and other *Trek* titles. IBM, $79.95

Superhero League of Hoboken (Legend)

Mutant caped crusaders in a post-holocaust environment... The infamous Dr. Entropy is planning to subject what's left of New York City to an assault of bombardier pigeons... It must be another tale from the fertile and devious mind of Steve Meretzky! The humor is darker than in most Meretzky adventures, but the wit is as razor-sharp as ever, as our intrepid do-gooders battle mutant ragweed, rabid sheep and exploding limburger bombs in their quest for justice. The superheroes themselves are a memorable and motley lot, including The Iron Tummy (for whom Tabasco is the taste that refreshes), Robomop (a quicker picker-upper than even Bounty) and The Crimson Tape, staunch leader of the troupe, who can create organizational charts in a single bound. Instead of the treasure chests found in traditional CRPGs, important items are found in pizza boxes by the super-vision of Mme. Pepperoni, and superhero-type goods are available at the local pawnbroker. Fairly simple puzzles and a tight, if warped, storyline combine with the usual ribald humor to make this a memorable RPG romp. IBM, $59.95

Under A Killing Moon (Access)

Tex Murphy certainly has come a long way from his origins as a rather minimalist sprite in MARTIAN MEMORANDUM. Chris Jones' alter ego now shares the screen with such heavyweights as Brian Keith, Russell

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Means and Margot Kidder. And a big screen it is, too, the full-motion video stretching across *four* CDs. Both the video and the interface are considerably improved over AMAZON, Access' last adventurous foray of note. The acting is earnest enough, and blends in pretty well with the hard-boiled detective plotline. Once outside the video segues, the game is actually interactive in the old-fashioned adventure-game style (for which we can all be thankful). Clues are available on-line, at a corresponding loss in victory points, but the adventure is not terribly difficult in any case. For those wondering what "multimedia gaming" is all about, KILLING MOON grants them a most accessible first step into the medium. IBM CD, $99.95

Under A Killing Moon

Vortex (Hyperbole Studios)

This sequel to QUANTUM GATE is Greg Roach's effort to make a more truly interactive experience than his original multimedia work. Three CDs hold a lot of digital video—some seven hours are supposed to be in the final product. The nice thing about all this full-motion acting is that the storyline *does* branch out into a number of different directions (although the hundreds of pathways promised were not available for preview) rather than following the essentially linear plot points of QUANTUM GATE. The script seems to have lost some of its political correctness while retaining its science fiction sensibilities. Acting quality is once again solid, and the soundtrack combines African beat rhythm with techno-pop to create an appropriate other-worldly mood to match the stunning visuals. This time, it does look like the gamer will make at least a minimal difference in how the plot unfolds. Perhaps this school of *nouveau cinema de silicon* has matured enough to actually enter the realm of—dare we say it—adventure games. IBM, Mac, $79.95

Voyeur (Interplay)

Rat out a presidential candidate with murderous intentions by spying on an entire family in this "mature audience" game. Using your video camera, you'll watch Reed Hawke and his dysfunctional family over two days' time as your gumshoe-turned-peeping-tom tries to garner enough video evidence to prove to the police that all is not right at the Hawke mansion. And you thought the Gary Hart scandal gave a bad name to "Monkey Business!" Light profanity, sexual imagery, and murder are amongst the "adult subject matter" performances you'll see in the full-screen digitized video clips that make up the core of this game. VOYEUR is sometimes more a non-interactive movie than a game, but it does have a quality soundtrack, good use of camera angles and decent performances. IBM CD-ROM, $79.95

Wolf (Sanctuary Woods)

One of the most unusual and intriguing products of the holiday season, WOLF offers a look at life from the viewpoint of *canis lupus*. Some 40 different scenarios feature wolf-like goals: killing a requisite number of caribou, staying alive for a day on the tundra, or successfully challenging the alpha male. In what would pass for a "campaign" mode, you can live the entire life-cycle of a wolf. Learn of the daily struggle for food, where it is best to sleep, enjoy the passions of mating, and the tenderness of caring for wolf cubs. The customizable nature of the program allows you to choose climate, terrain and proximity to humans. Adding to the realism is a rich database of informational resources about these loved and feared animals, commendable in its own right. Certainly one of the most original titles of the year. IBM, $49.95

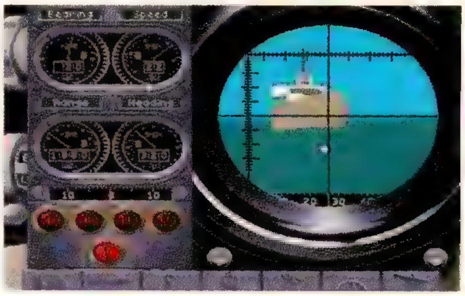
The Zork Anthology (Infocom)

This is a greatest hits compilation of *the* adventure game classics. These days, it's hard to imagine the impact that a few lines of on-screen text had on millions of computer users a decade ago, but the ZORK games are still good enough that the trip is more than mere nostalgia. Without the multimedia extravagance of last year's RETURN TO ZORK, all this manages to do is relive those times when story-telling was everything—something interactive programs of today could certainly learn from. This thoughtfully arranged package includes the *Lost Despondent Adventurer's Maps* for those gamers who may have trouble getting around in the Great Underground Empire, as well as clues for each of the five ZORK games. PLANETFALL, one of Steve Meretzky's best adventures, is included as a special bonus. If you've never experienced ZORK, this is your chance to visit a world where the hungus roam freely, chocolate truffles grow in the roots of oak trees, and grues inhabit dark caves to feed on unwary adventurers. IBM, Mac, $79.95

SIMULATION

Aces of the Deep (Dynamix)

A detailed historic simulation, ACES OF THE DEEP allows you to take command of various U-Boats throughout WWII. Structured much like other ACES products from Dynamix, the game allows you to engage in training missions, stalk convoys in single scenarios, or attempt to live through the dangerous career of a submerged warrior. Every detail, from the cramped quarters to the antique radio room and period naval grid chart, creates an authentic picture of life aboard a WWII *Untersee-boot*. The tension of seeking out merchant convoys while evading anti-submarine aircraft and destroyers has never been so well simulated. The superb documentation caps off the experience as a great historical reference for you to reflect upon while in port. Highly recommended is the CD-ROM version, which has an excellent on-line manual, over 40 minutes of video interviews with eight U-boat captains, additional historical missions, and an interactive tour of a U-boat. Of all the game tonnage due out this holiday season, ACES OF THE DEEP is one game that should be in your periscope sights. IBM, $69.95



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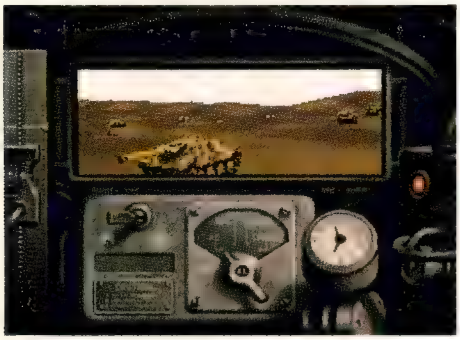
Across the Rhine (MicroProse)

Across the Rhine is a WWII tank simulator with excellent graphics and sound. The numerous scenarios find waves of Sherman tanks taking on *Panzers* within the constraints of the infamous French bocage, the plains of Belgium, and even the beaches of Normandy. The product has come under fire prior to release because of MicroProse's decision to leave the controversial *SS* out of the game, yet it seems to have a great deal of attention to historical detail otherwise. Jim Day's design is considerably more playable than Day's early boardgames, and the solid historical detail is made accessible through many user-friendly options. You may switch from individual tank command to overseeing a tank company, or even a battalion, all the while keeping track of your exploits in a "tanker's diary." Every tank and tank destroyer on the Western Front, plus a number of historical and hypothetical campaigns, make this a game any tread-head will find hard to pass up. IBM, $59.95


Across The Rhine

Air Havoc Control (Trimark Interactive)

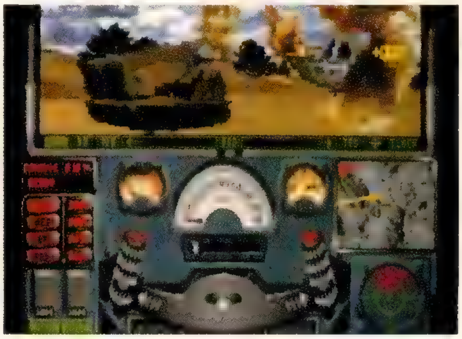
Ever wonder what it would feel like to sit in an airport control tower and direct traffic? Lots of early computer programmers did. That's why there were lots of air traffic controller games with minimalist graphics. Now, Air Havoc Control puts you in the hot seat in a graphically appealing manner. Although the game focuses primarily on the radar screen, you'll also see amazing animated sequences depicting airplanes taking off and landing, as well as any crashes and near misses you might cause. An encyclopedia of aviation information is also provided on this Windows-based CD-ROM. Things get more than a little hectic, particularly in the advanced stages, as you must direct 9 or 10 planes at a time, ensuring that each one gets to its proper destination in one piece. **Trimark** has come up with a well-focused game that is easy to learn, hard to play, and will have you pulling your hair out just in time for Holiday family photos. IBM, $49.95

Armored Fist (NovaLogic)

Tank fans have cause to rejoice, because the action in this simulation lights up the screen faster than a TOW missile. The view from an M1 Abrams or Bradley fighting vehicle is stunning, due to Kyle Freeman's use of Voxel Graphic technology. Not only is the look even better than that of Commanche: Maximum Overkill, but the designers have employed their experiences from that simulation to properly integrate helicopters, supporting their view that Apaches and Hinds are practically flying tanks. In addition to such high-tech toys as thermal sights and image intensifiers, the smoke—sometimes impenetrable, other times translucent—adds to the realistic atmosphere. Explosions are quite satisfying, especially when it's the enemy who goes up in a bright orange fireball. With the ability to command a tank platoon, this most resembles the venerable M1 Tank Platoon with better graphics and AI, along with a more first-person feel. A number of challenging scenarios and campaigns, along with an advanced mission builder, will keep the hatches of PC commanders buttoned down for quite a while. IBM, $59.95

Dawn Patrol (Empire)

Rather than being intimidated by **Dynamix**' Red Baron and its aura of supremacy, Dawn Patrol whips into the fray like a Fokker DVII making a surprise dive out of the sun, and features a good balance between playability and historical detail. From a technological standpoint, this program is no danger to Falcon 3.0, but the aircraft are well-rendered and the graphics capture the Flying Circus period quite nicely. The European interface is overly concerned with being keyboard-controllable, but at least this makes for responsive hot keys, and the major joysticks are also supported. The design takes some controversial stands (Immelman wasn't *really* the best Ace, his teacher was) and in general bares its affection for the chivalrous air knights. The game play is backed up by a detailed database, excellent variety of aircraft, and the ability to edit scenarios for a lot of replay. IBM, $69.95


Armored Fist

Fleet Defender Gold (MicroProse)

Multimedia has many uses, but not necessarily for gamers. This CD offers video footage of F-14s shooting down a pair of MiG-23s, somewhat novel for a game. Compelling as this might be for novices, chances are that most flight sim fanatics have seen this, or similar footage, before. The main reason for gamers to buy this version of Fleet Defender is the six new campaigns, which include such hot spots as Korea and the ever-volatile Indian Ocean theater. The AI is supposed to be enhanced when released, and wingmen now react more as if they have your best interests in mind. Of course, the latest bug fixes are also integrated, so this holiday season might just be the time to fly the less-than-friendly skies without crashing. IBM CD, $59.95

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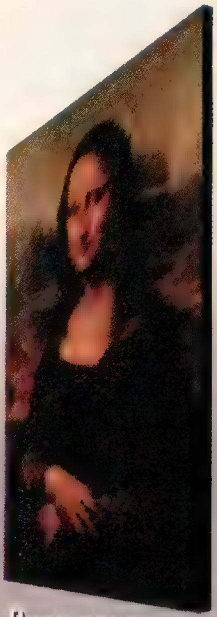

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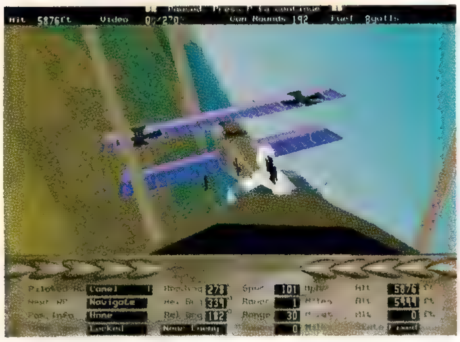
Flight Unlimited (Looking Glass)

This could be the revolutionary flight simulator that takes you out of the wind tunnel and puts you in the air. As noted in our earlier Sneak Preview (*CGW* #122), Flight Unlimited features the most photorealistic terrain we've yet seen in a flight simulator and offers the most realistic flight model to date. Because its designers are modeling a dynamic physical model of the air (using fluid dynamics of atmospheric behavior), as well as modeling the plane, it is the first flight sim to offer realistic maneuvers such as knife-edge flight and tail slides. The flight model takes into effect such phenomena as radial Gs, control reversal, and pitch oscillation as it thrusts you into an amazing simulated experience. DAT-sampled engine sounds and wind sounds add to the experience as they are blended together according to wind speed and air speed calculations. Warning: you'll probably need a Pentium to get this baby off the ground. IBM, $79.95



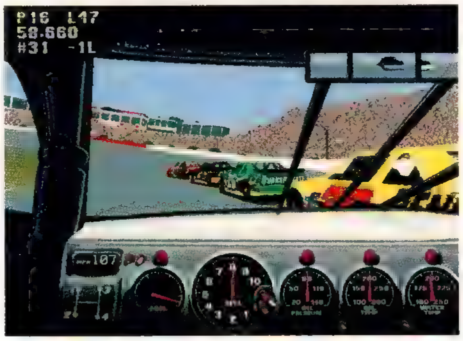
Dawn Patrol

NASCAR Racing (Papyrus Software)

Once upon a time, we thought IndyCar Racing was the ultimate racing experience. Then, we experienced the more detailed physics of NASCAR Racing and tried drafting strategies. We bumped our opponents' texture-mapped cars (39 cars based on real cars, racing teams and sponsors) which look even more realistic than IndyCar Racing's and experienced some of the new graphic effects for the crash sequences. We raced over the nine racetracks in our beta version (Atlanta, Bristol, Darlington, Loudon, Martinsville, Michigan, Phoenix, Talladega and Watkins Glen), played with the camera angles for instant replays, and looked at the tools for cutting and pasting custom highlight reels. After adjusting Weight Jack ratios to favor the left-side and loosening the Wheel Lock, we discovered that the car set-ups are fairly intricate and the cars more challenging to drive than those in IndyCar Racing. And we raced happily ever after. Although you can play the game in VGA mode on a decent 486, you'll probably need a Pentium to enjoy the game in all its Super VGA glory. IBM, $69.95

Space Simulator (Microsoft)

Welcome to Microsoft Flight Simulator in space. Based largely on data from NASA, including *Voyager* photos, this program is an ambitious attempt to model real spaceflight and show off the finer scenery in the universe. You won't find any jump points or warp drives here, although there is a time function that allows you to view the cosmos as it existed 100,000 years ago—or in the far future, due to mathematical modeling of relative star positions. The design extrapolates that such sophisticated craft as Bussard RamJets and F-79 galactic fighters will exist in the future for you to traverse the far-flung reaches of the galaxy—at relativistic speeds, of course. While some might quibble over the simulation value of such futuristic technology, it's hard to argue about the panoramic views. Docking with space stations requires some finesse, and navigating through gravity wells allows you to see gas giants up close in all their magnificent and terrifying glory. For those so inclined, this won't be wasted *space* on the hard drive. IBM, $79.95



NASCAR Racing

Tornado (Trimark Interactive)

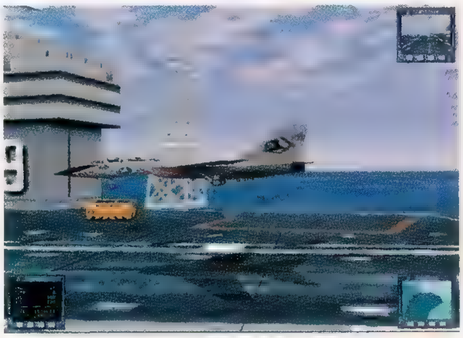
Tom Basham, *CGW*'s sim columnist, suggested in *CGW* #124 that Tornado might be the single most under-rated flight simulation of all time. Anyone who wants the challenge of air-to-ground strikes, with the attendant demands of flying a jet at 200 feet above the ground, needs to check out the latest version of Tornado. Tornado not only features one of the best mission planning systems of any sim on the market, but it also offers what Basham refers to as "an avionics fan's nirvana" in its radar modeling. Recently released in CD-ROM format with new Desert Storm missions, this British product should still command interest—especially at the budget price. Dive into last issue's Bogey's Bar & Grill for more details. IBM, $29.95

U.S. Navy Fighters (Electronic Arts)

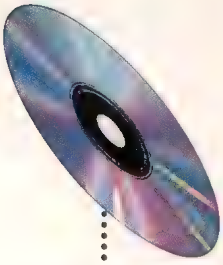
With the advent of this program, it is clear that a new generation of air combat simulations has arrived. One flight at the controls of an aircraft in 640x480 resolution, and you'll never view a cockpit quite the same way again. Brent Iverson and Paul Grace of Chuck Yeager Air Combat fame have kept things simple, fun, and graphically scintillating in this modern naval air combat simulation. Overall, this product tries to bridge the gap between lighter "fly by the seat of the pants" sims and the more detailed "fly by the buttons" affairs. While you won't be pre-flighting the aircraft or fiddling with radar gear, you will have resource allocation and robust mission management. For some, it will be like flying in their own *Top Gun* movie. It brings worthwhile new features to the genre as a whole, and it should open up possibilities to those new to the silicon skies. The big question is whether or not most users will have the screaming machine necessary to be able to make this CD-ROM product soar. Warning: you'll need some hefty hardware (Pentium) to get this bird out of the hangar. IBM, $59.95

Warplanes (Maxis)

For fans of the iron birds of prey, here is an interactive multimedia smorgasbord. Containing an on-line database of 530 air-



U.S. Navy Fighters



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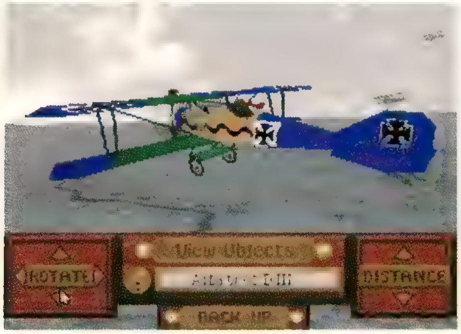
craft and 275 weapons systems, this is the most comprehensive aviation "coffee table book" we've seen. The informational structure, divided into three different wartimes, contains 3D graphical images, 25 miniature movies, and wartime strategies used with each plane. But best of all, you can fly some of these warplanes yourself. Three flight simulators created with **Domark**'s Flight Sim Toolkit are included so that users may pilot the Su-27, A-10, or C-130 at either 640x480 or 320x200 resolution. While the replay value isn't particularly high with these flight sims, they do offer the aficionado the opportunity to learn the difference between the three plane types in a way impossible to glean from pictures and databases. To find out more, fly into our simulation section for a full review. IBM, $69.95

Wild Blue Yonder 1: 50 Years of Gs and Jets (Spectrum Holobyte)

Wild Blue Yonder is a flight encyclopedia like the previous product, but it foregoes flight simulators and hundreds of plane descriptions for richer detail and more character. Twenty planes are discussed in this CD-ROM title, which focuses on four post-WWII eras: The Jet Age, Vietnam, Desert Storm, and Tomorrow. Each plane has an abundance of information lying in wait, from numbers, statistics, and photographs to interesting stories, famous interviews and crash logs. Also included are several QuickTime movies that provide live video footage of warbirds maneuvering and dogfighting. The re-view value isn't extraordinarily high, but what do you expect from what is essentially an electronic coffee table book? As our flight sim expert Tom Basham says in his review elsewhere in this issue: "If you tape episodes of 'Wings' and watch them over and over again, you won't be disappointed in WBY1." IBM CD, $49.00



Wings of Glory

Wings of Glory (Origin)

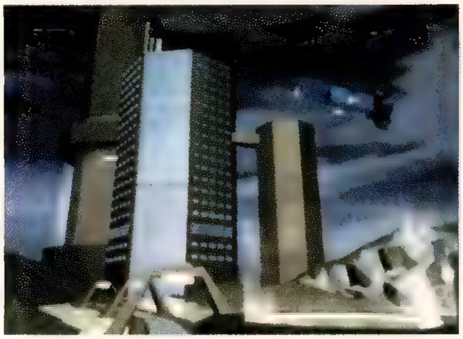
Sort of a cross between Red Baron and Wing Commander, this is a simulator with a heavy emphasis on fun over realism. Still, the game is much more realistic than when *CGW* first previewed it (*CGW* #119), and the planes do seem like the fabric and wood constructs they simulate, particularly in the earlier missions. Perhaps because of the slower aircraft speeds, the Strike Commander engine works better here than in its earlier incarnations. The combination of texture-mapping and polygons used to create the distinctive planes holds up well. Below, the detailed terrain features of trench lines and farmhouses go a long way towards suspending disbelief—especially when you dive right at them on bombing runs. Unlike Wing Commander, the player's actions further only his career, rather than affecting the course of the war, but anyone who ever wanted to be an ace in the Hollywood style of Errol Flynn or George Peppard won't mind very much. IBM, $79.95

STRATEGY/ WARGAMES

Battle Bugs (Sierra)

Battle Bugs is an intriguing wargame, cleverly constructed as tactical combat between enemy tribes of cute killer insects. The fluid combat system combines with a warped sense of humor to make a fast, fun and playable strategy game. As with any good wargame, progressing through the game's increasingly difficult missions requires learning the different abilities of the units, including ants, pill bugs, spiders, cockroaches, praying mantises, grasshoppers, bees, and tuxedo-clad wasps carrying gin and tonics. Some of the troops can swim or carry firecrackers and bombs, which adds another dimension to combat. The missions usually involve wiping out enemy units or taking control of vital snack treats on an assortment of playing terrain, such as a box of spilled Cheerios, counter tops, picnic areas, chessboards, etc. A great game for new strategy gamers, two of whom may play at once in the two-player mode. IBM $44.95

Battle Isle 2200 (Accolade)

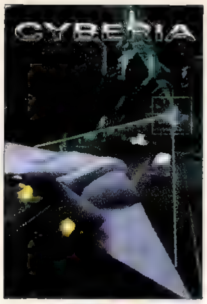


Battle Isle 2200

Based on a popular series of science fiction novels published in Germany, Battle Isle 2200 is a multiplayer science fiction military campaign. Would-be generals in the far future can face off against each other via network, e-mail, split-screen play at the same computer, or a "hot seat" version that is password-protected. The linear campaign for planetary superiority consists of 20 scenarios in a fixed order, but it is also possible to play "one off" random scenarios to determine the futuristic fuehrer with the best future. All told, the scenarios feature more than 50 types of vehicles from tanks, planes, and ships to moon-buggy personnel carriers. The game has 3-D cinematics and changing camera views to keep the graphics fresh, and clever artificial opponents that combine with custom surprises for each scenario to keep the gameplay fresh. IBM, $59.95

Bravo Romeo Delta (RAW)

At exactly 3:58 a.m., NORAD detects the launching of several nuclear-armed missiles towards the United States. Incredibly (and for no apparent reason) the Commonwealth of Independent States, formerly the Soviet Union, has fired a preemptive nuclear strike at the U.S.A. You need to react fast, but you also must "control the escalation process." This adaptation of an old Amiga title is fairly involved, though a bit outdated graphically. As the U.S. nuclear war strategist, you'll make decisions on how many bombs to drop on which military/industrial sites. Careful though, because wiping out a major population center, or firing too many nukes, is sure to bring the world to an end. The manual details nuclear strategies for each country which don't always translate into game play, but



Destruction looms in the year 2027. Global terrorists threaten to capture a doomsday device in *Cyberia*. But you can stop them. Armed with your instincts and a Sound Blaster card, you experience every detail. Interact with synthetic 3-D characters and move in a beautifully rendered world. Stunning sound effects and a full musical score make every action sequence breathtaking. Call it a truly original experience. And with Sound Blaster, it's unlike anything you've ever heard.

Ah, the crack and sizzle of another enemy ship turning to toast.

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the game will still appeal to the gamer who wonders how the world might avoid total holocaust in the event of a nuclear exchange. IBM, $34.95

Colonization (MicroProse)

Sid Meier must enjoy giving gamers many sleepless nights, because his latest game, Colonization, is almost as addicting as Civilization in the early stages and will make those Civilization fans feel right at home. The 15th-Century setting allows you, in effect, to assume the role of historic personages such as Christopher Columbus, George Washington, and Lewis & Clarke, as you discover, settle, and liberate a new world. Resource and economic management play integral roles, but most intriguing is the strong influence that Native Americans have on the game. From the moment your Mayflower lands, your explorers will be in constant contact with the various tribes of America. It's a tough choice to decide whether to peacefully co-exist with the natives, or use your superior technology to exploit and conquer. Either way, you'll find these decisions more than a little emotionally charged. Winning the game involves establishing your independence from the Motherland, and the game ends in what can be a huge revolutionary war. See the review in this issue for more details. IBM, $59.95

Fifth Fleet (Avalon Hill)

This **Stanley Associates** adaptation of the classic Joe Balkoski boardgame has the advantage of letting the computer handle the number-crunching complexity, while retaining the sound logistical model and combat accuracy of its paper predecessor. If anything, the game mechanics are even smoother in the silicon version, with all the added advantages of hidden movement. Rather than focusing on micromanagement *a la* Harpoon II, Fifth Fleet is more concerned with the subtleties of maneuver and tactics, even including a tactical display which the boardgame lacks. Crisp VGA graphics, a two-player mode, e-mail play and a solid, aggressive AI combine with a detailed tactical reference module to create perhaps the best boardgame conversion to date.

STOP
GO
REVERSE

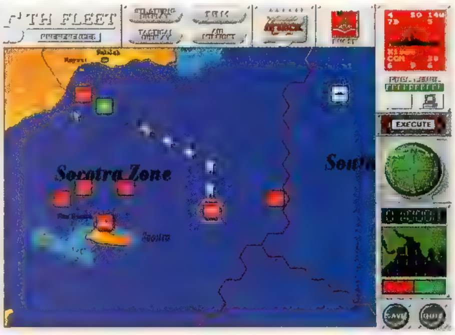
Prospective admirals wishing to know more about the launch of this flotilla can check out the Sneak Preview in *CGW* #123. IBM, $69.95

Flight Commander 2 (Avalon Hill)

Leave your joysticks by the side of the landing strip, because this isn't a flight simulator, but a tactical, jet-to-jet wargame. Charlie Moylan's strategy-oriented design has moved from Mac to Windows airspace, a pleasant sight for those of us whose reflexes aren't always up to Falcon 3.0. While the AH graphics are much enhanced over the original version, the formations fly just as realistically as before—provided you know the difference between a Phantom and an Eagle. Power dives, Immelmans, strafing runs—they're all here, with the added chrome of radio chatter and the clatter of cannon fire. A thorough database covers hundreds of aircraft, bombs, missiles and other hangar-busting hardware. Numerous solo and campaign scenarios let you pull high-G maneuvers in Vietnam, go Scud-busting in Desert Storm, or even create your own missions in any era from the Korean War to hypothetical 1990s conflicts. IBM, $69.95

Front Lines (Impressions)

This tactical battle construction set is aptly named, since the cornerstone of any scenario is identifying the front lines to be controlled by the forces of each player. Running under Windows, the construction set comes packaged with sample scenarios (our preview version had an abstract battle for an island, an ahistorical *besiege the barricade* scenario, and a historical representation of the Battle of Stalingrad). There are plenty of tools for building terrain maps, selecting unit mixes (both historical and near-future sci-fi weaponry), and establishing objectives for victory points (holding locations, maintaining locations intact, destroying a percentage of the enemy, maintaining a percentage of your own forces, destroying or protecting a headquarters, and building or destroying certain objects). The game is built around the phased movement and combat familiar to every veteran wargamer. In addition, every option for building the battles—from terrain through units to combat odds—is handled via pull-down windows using the powerful Windows tools. As a result, Front Lines is a



Fifth Fleet

Your clues are hidden in the whispers of floating apparitions. Eerie piano music could be a sign of danger. Warnings come to you through strange murmurs. So, if you want to unravel Old Man Stauf's bizarre secrets, keep your eyes peeled, your nerves steady, and your ears open. And take this hint—make sure you have a Sound Blaster sound card. Every bone-chilling shriek, hair-raising scream, and breathless gasp in *The 7th Guest*™ seems terrifyingly real when played on a Sound Blaster. Forget about getting out alive without one.

One by one the guests arrive. Then the party really starts howling.

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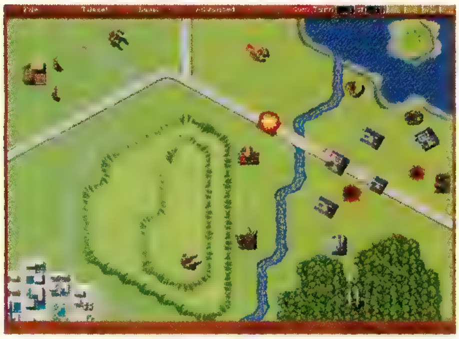
very welcome entry to the construction set library. Windows, $69.95

Hammer of the Gods (New World)

It is said that only the most heroic may ascend to Asgard, and that only one may achieve the highest honor bestowed by Odin, the title of Hammer of the Gods. Before a warrior is deemed worthy to leave the plane of Midgard, however, he must explore the randomly generated land, learn spells, engage in diplomacy and conquer his enemies. Similar to both Civilization and Master of Magic, this strategy game gains its identity through a series of quests. Before he can sit at Odin's right hand, the player must first please the lesser Norse gods, eventually moving up the chain of command. Quests vary from the diplomatic (marrying off one's daughter), to exploration (find the lost city of Lemuria), to out-and-out combat, including bearding a dragon in its lair. The AI is a decent enough opponent, but the magic sparks really fly in multi-player mode, especially on a network with up to four players. IBM, $69.95



Front Lines

Harpoon Classic (Alliance)

If that mustachioed captain on the box cover looks eager, perhaps it's because this revamped version of Harpoon gives armchair admirals reason to once again dip into some of wargaming's most storied waters. Less complex than either Harpoon II or Larry Bond's original miniatures rules, Harpoon Classic features a new, more intuitive interface. The new digitized sounds even include General MIDI music—a far cry from the primitive sound support of the original IBM version five years ago. Simply repackaging the numerous battle sets with bug fixes would have been a good value, but Harpoon Classic has 50 new scenarios as well, for a total of over 200 different missions. If you're interested in tracing Carl Norman's growth as a designer, the various Designer Series sets show how he learned his craft before tackling Harpoon II. If not, you can use the powerful Scenario Editor and create your own dream naval engagements. For those who aren't quite sure what it takes for a game to make the *CGW* Hall of Fame, this is a good way to find out. IBM, $59.95

The Incredible Machine 2 (Dynamix)

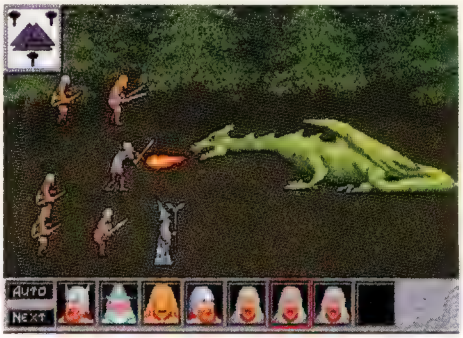
Quick—what's the most difficult way to get a basketball in the basket? How about dropping a ball on a hamster cage, which starts turning gears that move a conveyor belt around and around, pushing the ball into the basket. The 90s version of *Mousetrap*, The Incredible Machine, is back, even wackier than ever. In true Rube Goldberg spirit, the new version has over 200 brand-new brain teasers and an assortment of new tools and gadgets. Rockets, lasers, and blending machines are at the beck and call of puzzle-solvers as they try to accomplish simple tasks using incredibly convoluted methods. Meanwhile, hilarious cartoon-like graphics provide comic relief. But be forewarned, after the tutorial puzzles are finished, you'll be scratching your head for hours in front of this one. Should you somehow manage to solve all the puzzles, the fun doesn't have to stop; after all, you can always tease friends with your own deviously devised constructs. IBM, $44.95

The Incredible Toon Machine (Dynamix)

Anyone who loved those Warner Brother cartoons where the animated characters found themselves in the proverbial House of the Future should love the wacky animation in The Incredible Toon Machine. In Jeff Tunnell's latest installment in The Incredible Machine series, you create the same kinds of Rube Goldbergian devices you made in the past. The difference in the Toon version is that the result is always some wild animation where the cute, but not cuddly, creatures get anvils on the head and singed by dragon fire in order to get a chuckle out of you. The emphasis is still puzzle-solving, but the entertainment value has been punched up to the limit. Whether you're watching cats gag on hairballs or elephants sneezing their way through puzzle solutions, you'll have a great time straining you brain. Windows

Iron Cross (New World)

New World has published several light, enjoyable strategy games, and this one certainly looks pretty and is simple to pick up and play. Iron Cross is a real-time wargame that ostensibly resembles WWII small-unit combat. The documentation is filled with lots of historical detail (although this doesn't quite make it into the game), and the graphics and sounds are first-rate. As in the Perfect General, generals will buy their units from a menu of WWII hardware. Flame-throwers are a dime a dozen, giving firefights a whole new meaning (destruction was a fact of life in WWII Europe, but most battles in Iron Cross leave towns looking like the aftermath of fire-bombed Dresden). If you can get past the reality gap, or would just like to push units around and watch them explode, Iron Cross is a fast-playing game and an arsonist's delight. Rainy day Pattons might want to get the full battle report in *CGW* #124. IBM, $69.95



Hammer of the Gods

JigSoft (Eclectek)

Here's a supposedly relaxing diversion that ended up scrambling our brains. JigSoft is a digital jigsaw puzzle program offering much more power and flexibility than the real thing. Puzzlers can import eight different types of images and image formats (several are included), and have the program design a puzzle for you. The puzzles can be set at three different skill levels, and there are plenty of other options to tailor-make your own challenge. Jigsaw veterans will appreciate the inclusion of "working areas," which allow you to work on different parts of the puzzle in separate areas at the same time. And while no puzzle ever gets gargantuan (the maximum number of pieces is 192), you don't know the meaning of the word *baffling* until you've broken a simple-pattern bitmap into 100 rough-cut puzzle pieces. Jigsaw-

Dragon Lore

Between the roaring dragon and the screeching trolls, you can hardly hear yourself think.

Armored warriors ride the wings of flying dragons. Trolls devise a surprise attack. To survive, you'll need to stay alert. And have a Sound Blaster sound card. In *Dragon Lore*, every nuance of battle comes to life with synchronized speech and sound effects. Bones crumble beneath your broadsword. A flailing mace rips through chainmail. And you hear it all with Sound Blaster. Just think of it as your most important weapon.

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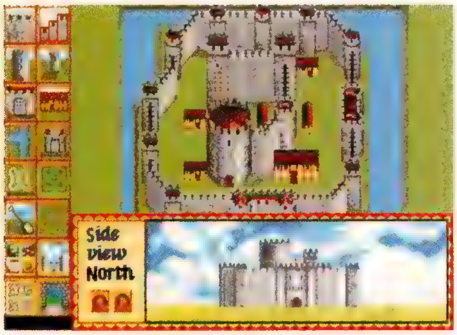
ers can even create their own "user carved" puzzles. IBM, $39.95

Legions (Mindscape)

Legions est omnis divisa in partes XXI. Actually, all of Legions could be divided into 11 scenarios, since 10 of the scenarios for fighting ancient campaigns are merely randomized doublets of the purely historical scenarios. This solitaire or multiplayer game ("hot seated" or on a network) allows you to follow in the footsteps of Alexander, Caesar, and Charlemagne, among other ancient leaders. Your goal is to capture enough major towns to be able to remove the opposition tribes and establish your own empire. An economic minister assists in keeping the basic economy in check, but micro-managers will fare better by taking care of their own trade and procurement. Diplomacy is particularly important, since you can easily have two- and three-front wars without neutralizing some of your opponents. See the sneak preview in this issue for more information. Macintosh, Windows, $59.95

Lords of the Realm (Impressions)

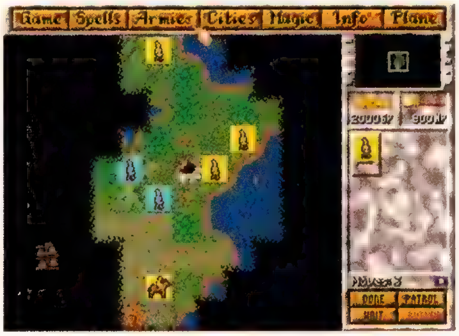
It may be good to be the king, but getting there is a lot of the fun when you combine fief management with castle design, diplomacy, strategic movement and tactical battle command. The lessons from history seem sound, though the actual opponents are abstracted, and the game offers true multiplayer play ("hot seated" at the same computer or using a new modem patch). Crop rotation is more simplified than it is in real life, but you get to determine which fields are used for wheat, pasture, and meadow as opposed to those allowed to lie fallow. We also like the way that manpower has to be assigned to given tasks and the way the traveling merchants are handled. Tactical combat is real-time with interrupts *a la* Sword of the Samurai or Centurion. In all, a great game that will be on the playlists for a long time to come. IBM, $69.95



Lords of the Realm

Master of Magic (MicroProse)

Master of Magic brews together the exploratory nature and city building aspects of Sid Meier's Civilization; the technology and research aspects of Master of Orion (substituting magic for technology); the combinations of spells to counteract other spells *a la* Magic: The Gathering; tactical combat reminiscent of that in Genghis Khan II; and a near role-playing element in developing your wizard character. The entire game experience is subtly enhanced by the best Dave Govett (of Team Fat fame) score since Wing Commander, and the interface will be instantly recognizable to any Sid Meier's Civilization fan. See the full review of Master of Magic elsewhere in this issue. IBM, $59.95



Master of Magic

Metal Marines (Mindscape)

The first time a rocket fired by your opponent zooms out of its home window and crashes into your viewing window, you'll be hooked on this real-time Battleship on steroids. Metal Marines for Windows allows you to obliterate the base and landscape of a computer opponent's island or to nuke your office buddies into submission via network play, while cute Japanime sequences add to the fun. The game uses balkanized island governments with base layouts that look like remnants of Maxis' SimCity or Gremlin's Utopia. Your goal is to locate your enemy's base (the opponent's island looks completely empty until the "camera" on one of your missiles sends back intelligence) and destroy it, while simultaneously building up your military/industrial complex so that the bad guy can't get you. IBM, $49.95

Onslaught (Frontal Assaultware)

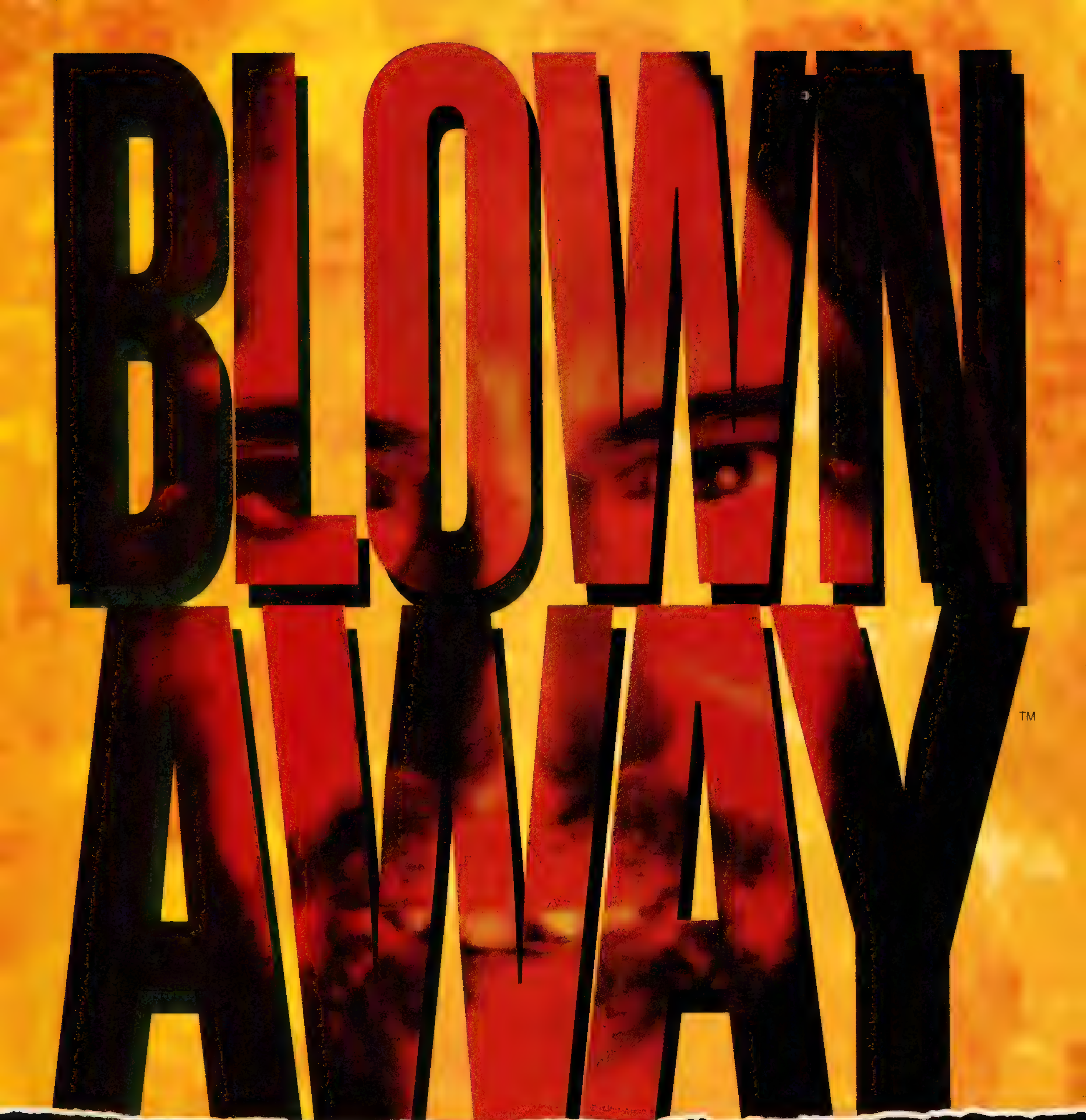
Combined arms in the post-World War II era provides the underpinning for this grand tactical game of land and air warfare. Pop-up windows proliferate to provide: detailed information windows on units and terrain; a build window which shows economic status and unit efficiency levels *a la* Panzer General; a beautiful tactical map reminiscent of the V for Victory series; and a strategic map. The scenarios are abstract rather than historical, and there is a delicate balance between managing your economy and building the right types of armor, infantry, artillery and air power in order to combine arms against the enemy. However, human players facing the artificial opponent may feel that the AI has been given massive quantities of firepower to make up for its notably inferior strategic capacity. In short, Onslaught fills the Korea gap in near-modern wargames by using the weapons of that period in ahistorical situations. Mac, $69.95

Operation Europe (Koei)

This entry-level wargame uses an intuitive interface with a number of bells and whistles to make the European theater of World War II accessible. Wargamers can control either the Axis or the Allied forces in several different battles, including D-Day. Hand-pick your staff and commanders for each squadron, then jump into battle, giving your troops commands through the mouse and pull down menus. Serious wargamers may find Operation Europe too cutesy, but they'll miss out on the clever artillery and supply rules. Novices should appreciate the flow of the game and the amount of clear, helpful information on the screen. While you can manage your troops in individual battles, this seems contradictory to what is essentially a theater-based wargame. Definitely a light contest, but still a good initiation for computer wargames. IBM, $59.95

Panzer General (SSI)

Fun, fast, and furious *Panzer* pushing, complete with animated battle displays, hide the fact that this game is closer to Clash of Steel than an action game. Formations may attack either before or after movement, which makes for some interesting tactical choices during play. The grognard will be pleasantly surprised to find that the system embraces the rudi-



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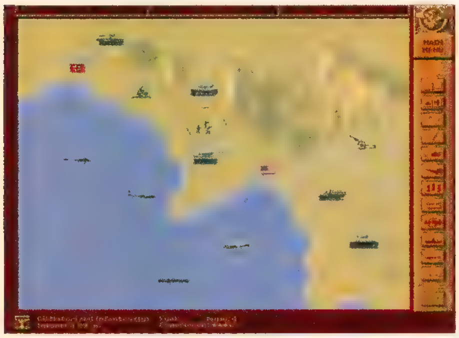
ments of combined arms and has reasonable logistics rules for a campaign-level game. Units are rated separately for attacks versus hard and soft targets, anti-air defense, firing range and the like. In the campaign game, a unit's experience level fluctuates with battle performance and influx of new recruits. A clever "prestige point" system awards units which eliminate more enemy troops and capture more cities, allowing them to be upgraded with elite replacements, within historical limits. While great historical insights are unlikely to be found, the brisk play (including multiplayer e-mail play) incorporates enough sound military principles to keep any Rommel wannabe engaged in combat for months to come. See the Sneak Preview in *CGW #122* for more details. IBM $64.95

The Pure Wargame (QQP)

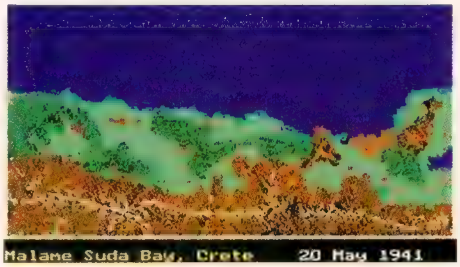
Covering the development of paratroop actions throughout WWII, The Pure Wargame looks to be QQP's strongest *historical* simulation ever. There are over 30 different types of units in the game, and the order of battle research looks impressive. The clean, uncluttered look marks an improvement for QQP in terms of graphics, and the interface is very easy to use. Nearly all of the famous airborne assaults are here, from the wild affair at Crete to the capture of the supposedly impregnable fortress of Eben Emael. A bonus is a hypothetical scenario of Folkestone, based on actual German plans to invade England. IBM, $49.95



Panzer General

Reunion (Merit)

Three hundred years ago, your ancestors were sent far, far away to settle another planet. Inevitably, the galactic map was lost, so you'll have the search for your ancestors from scratch. Reunion, with its combination of space exploration and planet building, builds on themes from several classic games. The game resembles SimCity as you construct new colonies and, hopefully, keep them happy with low tax rate and a high standard of living. A Master of Orion influence is apparent in how you research and develop new technologies, while simultaneously waging war with bloodthirsty aliens. Making strategic decisions in real time is reminiscent of Pax Imperia. And that's not even scratching the surface. As a matter of fact, we often had so much to do that we became overwhelmed. Reunion is an imaginative game that could have benefited from an option for turn-based play. IBM, $59.95



The Pure Wargame

Rise of the West (RAW)

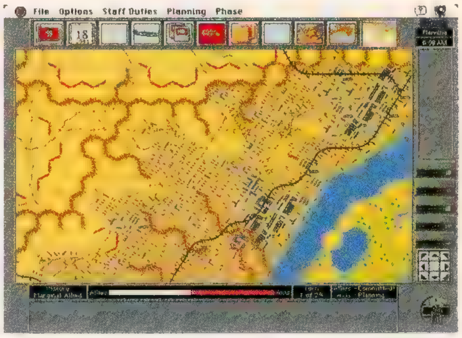
This conversion of James Dunnigan's Empires of the Middle Ages is a fast-playing, strategic and diplomatic romp through a volatile historical period. Originally written on the Amiga in order to assist an avid group of Empires of the Middle Ages players with the bookkeeping required for the boardgame, the game became a faster and easier-to-play substitute with five scenarios (AD 1180, 1250—one for four players and one for five, 1300, and 1400). At least one of our editors wore out two different Amiga disks playing the game in both solitaire and multiplayer mode (at the same computer). The new Windows version of the game offers adequate graphics, since only area movement is required on the simple map of Europe, and simulated card shuffling provides the randomization necessary to keep things lively. The play balance is so superb that it will keep most gamers coming back for more, even without glitzy graphics or special effects. Windows, $34.95

Sabre Team (MicroLeague)

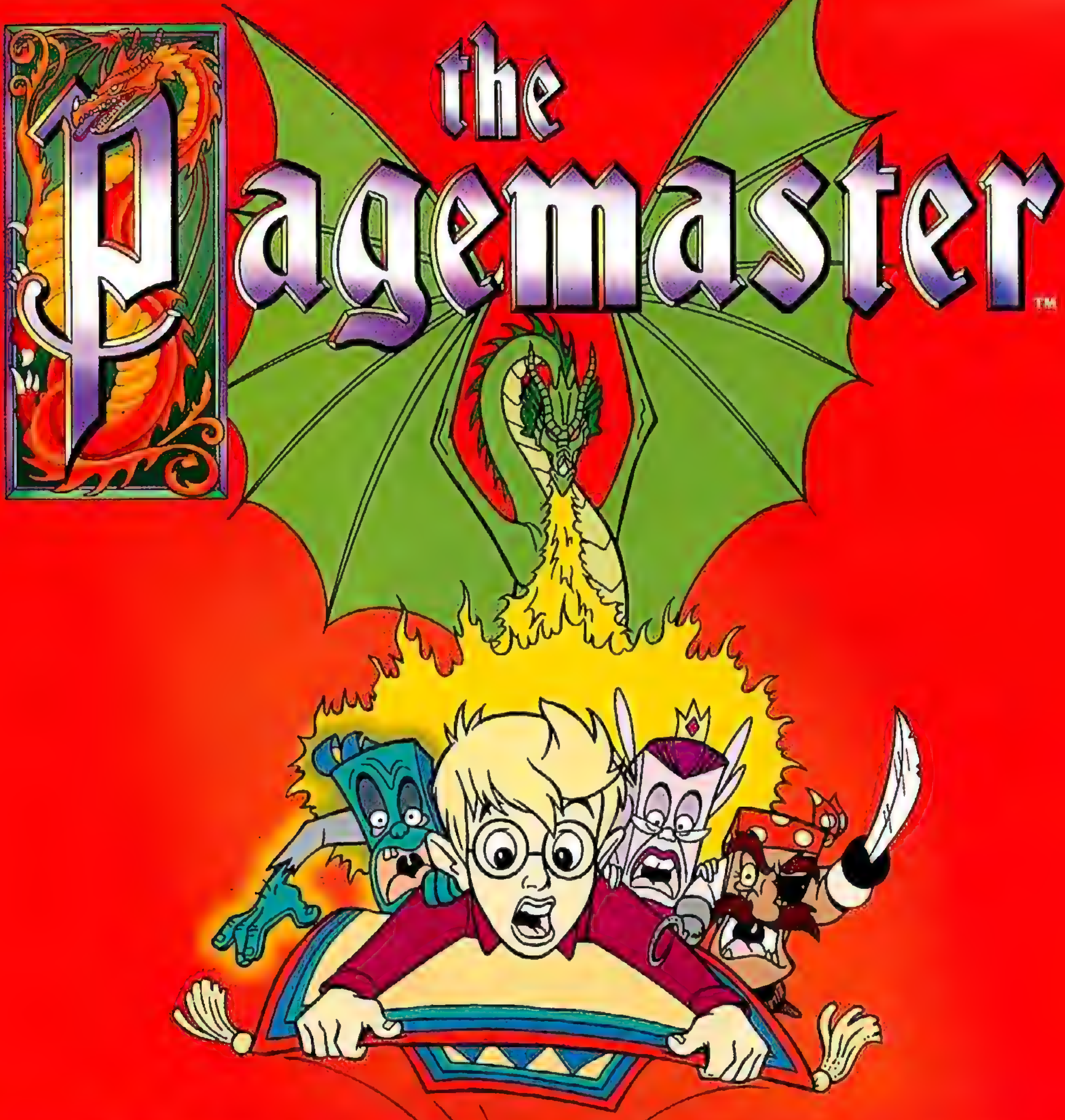
If you take X-COM, strip the interesting strategic game and research, and trade the aliens in for terrorists, you'll have a good handle on Sabre Team. It's nice that the elite British squad gets a shot at silicon fame, but this product will never be confused for a more serious simulation such as Seal Team. To be fair, what the game tries to do is provide fast tactical action, and it largely succeeds. The array of armaments is impressive, from machine guns and gas masks to stun grenades and bullet-proof vests. The problem is that the game system doesn't easily allow for transfer of equipment, so make sure that sniper has a high-powered rifle before you charge in to save hostages. The scenarios are varied and mostly interesting, requiring some tactical savvy to get through relatively unscathed. Overall, Sabre Team offers a training ground for more challenging fare. Prospective team leaders should recon *CGW* #124 for the big picture. IBM, $59.95

Stalingrad (Avalon Hill)

The *World at War* series continues, moving from the North African deserts of Operation Crusader to the snowy steppes of 1942 Russia. The most ambitious undertaking yet by **Atomic Games** and **Avalon Hill** has scenarios ranging from the typical three kilometers per hexagon scale, all the way down to a mere 400 yards/hex, in order to simulate the struggles in the inner city of Stalingrad. With maps based on WWII aerial photography, the research approaches the best yet done for a computer wargame. New air rules include expanded roles for aircraft reconnaissance and transport (have to keep that isolated Sixth Army supplied, don't you know). In general, the scenarios are much bigger than in Crusader, with motorcycle infantry, late-night ferry crossings of the Volga river, massive artillery barrages, and a variety of terrain features adding plenty of spice. A good way to find out why Mamayev Kurgayen is considered the Little Round Top of Stalingrad. Mac, IBM, $69.95



Stalingrad



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TURNER HOME ENTERTAINMENT

Circle Reader Service #122

Star Reach (Interplay)

Start with a Spaceward Ho! stock; combine with a Dune 2 sauce, and garnish with a little sprig of arcade action. This Interplay recipe attempts to link traditional space exploration/conquest with no-rest, no-holds-barred multiplayer action. Space conquistadors will have their abilities and their forces stretched to the max in a sequence of star-faring missions. Although the action mode may be turned off by more strategically-oriented admirals, the simultaneous two-player mode makes for a hectic race to turn the enemy into anti-matter. Gamers who want a piece of the action may personally lead their forces to victory, with the risk of dying in their flagship. While lacking the diplomatic aspects of Master of Orion, this game offers high-octane play versus the strongest opponent—another human (or whatever race the other side might be portraying). IBM, $59.95

Star Reach

Transport Tycoon (MicroProse)

In a 3D tile-based world, players create networks of rail, sea and air service to connect various towns. The game requires that you manage power and energy resources, building oil refineries and sawmills, mining ore and coal, and even running farms. In addition to building different types of trains, boats and airplanes, travel routes must be managed as well. That all this activity isn't totally overwhelming is a tribute to the elegant interface design. While the AI opponents are fairly tough, they lack the personality of the rail barons of Railroad Tycoon. Besides, the best way to play this cross between Railroad Tycoon and SimCity is against another live human antagonist. IBM, $59.95

Warcraft (Blizzard)

This clever strategy game offers a view from both the Orcish and Human perspectives. The pressure of moving units in real-time rather than turn-based mode makes combat nicely chaotic. Constructing medieval towns and managing their growth offers a Sim City-type of familiarity. Mining for gold, harvesting lumber, and training military units in barracks are reminiscent of Civilization, but here the technological advances leave one with magic missiles rather than nuclear-tipped warheads. The decades-long war between the Orc and Human races is told through a series of scenarios, interspersed with dramatic cut scenes. While combat itself is largely crash-n'-bash, two dozen different types of units, including giant spiders and intelligent slime, offer plenty of variety. The more adventure-minded should enjoy the numerous quests, where players must cure magical plagues, commiserate with Kobolds, and chase outlaw Ogre hombres through the appropriately named Icebone Peaks. IBM, $59.95

Zig-Zag (QQP)

Draft Scrabble, Boggle and Hangman for your forecourt. Then, match them up with a detailed scoring system and four quests (reminiscent of the journeys in Solitaire's Journey) as your backcourt. You *should* have a winning team.

Transport Tycoon

That's what **QQP** is banking on with Zig-Zag, their latest puzzle-solving strategy game. You guess letters in a modified Hangman style, but as the guesses progress, you have to build those letters into words *a la* Scrabble or Boggle. Each guess can net you points as you strive to solve the four, five, six or seven letter answers. The quests require you to choose a path across the surface of a Hawaiian island, between islands in an outrigger canoe, through a tropical jungle, or through shark-infested waters. Each quest adds interesting scoring variables that should keep you playing as you seek larger and larger multiples for higher and higher scores. The difficulty factors are very significant and enhance the long-term play value of the game. Windows, $49.95

SPORTS

Brett Hull Hockey (Accolade)

From the first face-off, this hockey title will wow you this winter with high-speed skating action and smooth SVGA graphics. Offering full league play and a host of the options we like to see in any sports sim, Brett Hull Hockey looks like it could give **EA**'s NHL Hockey a run for the Stanley Cup. One big plus is Al Michaels' play-by-play commentary, which keeps up with the flow of the game much better than that of Hardball III. The intense on-ice action and fluid vertical scrolling show a lot of attention to detail, particularly in the goalies' acrobatic motions. It may not be quite the same as a live Canucks-Rangers Stanley Cup game, but at least it offers a chance to see big league hockey with actual players. IBM, $59.95

ESPN Baseball (Sony)

Despite the strike, this baseball program is right on schedule, which is a good thing, as most sports fans can never get enough of Chris Berman. Not blessed with the dulcet tones of an Al Michaels, Berman makes up for it by being the consummate fan-turned-analyst, and his witty commentary is the spark that could set this game apart from its many competitors. The SVGA graphics are sure to excite even the most jaded fan, and the color scheme is not as garish as some baseball simulations of late. Thankfully, Sony remembered to put the game in along with the multimedia trappings. Along with the obligatory plethora of statistical information, ESPN also has league play, trades, and even batter practice. The play seems to be somewhere between Hardball 4 and Front Page Sports Baseball, leaning more toward the action-oriented end. Gamers should be able to throw out the first pitch around Thanksgiving. IBM, $59.95

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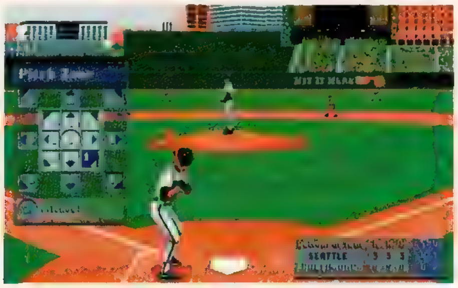
Front Page Sports Baseball (Dynamix)

If your appetite for baseball wasn't quite sated by Ken Burns' epic PBS mini-series, the folks at Dynamix offer a real run around the bases with this product. All the care that made FPS Football such a success is evident here, with the addition of new player animation. Given new graphic life through rotoscoping, players dive to scoop line drives out of the dirt, leap to catch fly balls, and generally look more like real baseball players than any computer sprites have a right to. Unlike many action-oriented baseball games, the boys in FPS Baseball can actually play defense, too. Statistically, the game is fairly sound and conforms nicely to the player ratings, particularly those that measure the effect of pressure in the late innings, although there are a number of bugs in the initial release. The comprehensive design includes trades, injuries and a host of replay options, although the latter takes some time to complete. Great for two-players, and sporting a good AI manager, this might take a lot of the bite out of the baseball strike this holiday season. See the full review in *CGW* #124. IBM, $54.95

Front Page Sports Football '95 (Dynamix)

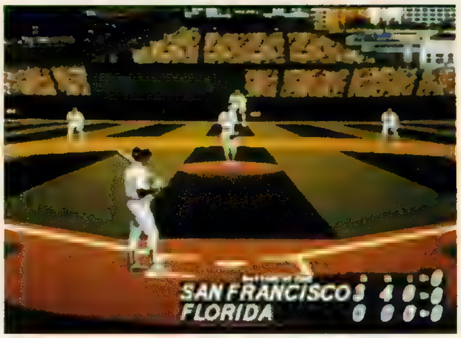
After winning two consecutive *CGW Premier* awards for best sports game, what can Patrick Cook and the Dynamix crew do for an encore? For starters, the NFLPA license allows fans to pit their favorite stars against each other using their real names. VCR replay functions and camera angles are enhanced, showcasing the new rotoscoped animation, a by-product of the work done on FPS Baseball. All the '94 season NFL rules are implemented, including the 2-point conversion, with new rules for blocking field goals. Now texture-mapped, the football field includes actual team logos in the end zones. Defenses are more sophisticated, with more specific man-to-man pass coverage, and a "read" option included. Blocking techniques now simulate screens, draws and sweeps better by a "block/next" function. Player editing is much simpler, and now includes user-defined algorithms for rating individuals by position, plus a draft profile for generating league play. Enhanced stat information, a faster replay/sim mode, and over 10,000 stock plays in the CD version leave the impression that the Dynamix team is once again playoff-bound. IBM, $54.95



Front Page Sports Baseball

Hardball 4 (Accolade)

Accolade is looking to regain some control in the crowded computer baseball market with an impressive looking Hardball 4. Still a more action-oriented game than most other games on the market, this latest version of Hardball appears promising, using real-life rotoscoped players who look as if they've been captured directly from the TV screen, as well as high-resolution graphics. The character sprites in the version we saw were nice and big, and the game was fluidly animated. The pitcher-batter interface still remains among the best in the market. Hardball III users will be pleasantly surprised with the increase in statistical power, although number junkies will still want more. While lacking some of the features that make Front Page Sports Baseball special, Hardball 4 should more than meet the expectations of action-oriented baseball fans this Christmas. IBM, $69.95



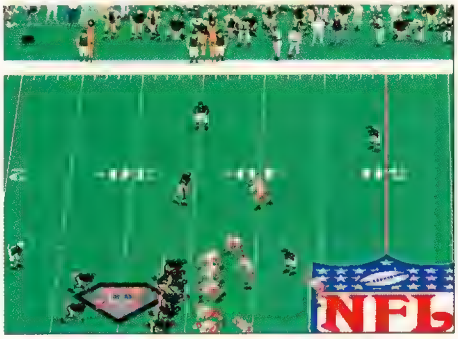
Hardball 4

Microsoft Golf 2.0 (Microsoft)

Take a break from that boring spreadsheet this holiday season and hit the electronic links. While not providing as many game play options as PGA Golf 486, this does adapt much of the power of Links 486 to a comfortable and attractive Windows setting. Golf 2.0, much like its predecessor, provides quick action, surprisingly fast screen re-draws (for those with a 486 or higher), and simple gameplay, although serious golfers may add advanced options if they wish. The new features, such as enhanced graphics, more varied views of each hole, and better grid overlays for judging the slopes of greens while putting, are a welcome sight. While only one course, Firestone South, is included, you can import courses from Links 386, and Microsoft will be releasing add-on courses as well. The best thing about this game, though, is that it is done in Windows, so when your boss is coming, all you have to do is Minimize. IBM CD, $64.95

NFL Pro League Football Commemorative Edition (Micro Sports)

This game may not have "the most detailed animation" on the market, as it claims, since it must compete with Ultimate Football and Front Page Sports Football '95 for that crown, but Micro Sports can be forgiven for being enthusiastic. With much better graphics and sound support than before, this gridiron simulation moves into the high-profile leagues. All of the new rules changes and 1994 rosters are included, and the stadiums are detailed down to local wind effects. At least in the early version we saw, player movement seemed pretty well coordinated with statistical speed ratings. It's hard to judge blocking techniques and emulation of team styles at this point, but the play-calling interface seems improved over earlier versions. Pigskin prognosticators should expect this to break from training camp in plenty of time for the playoff run. IBM, $69.95



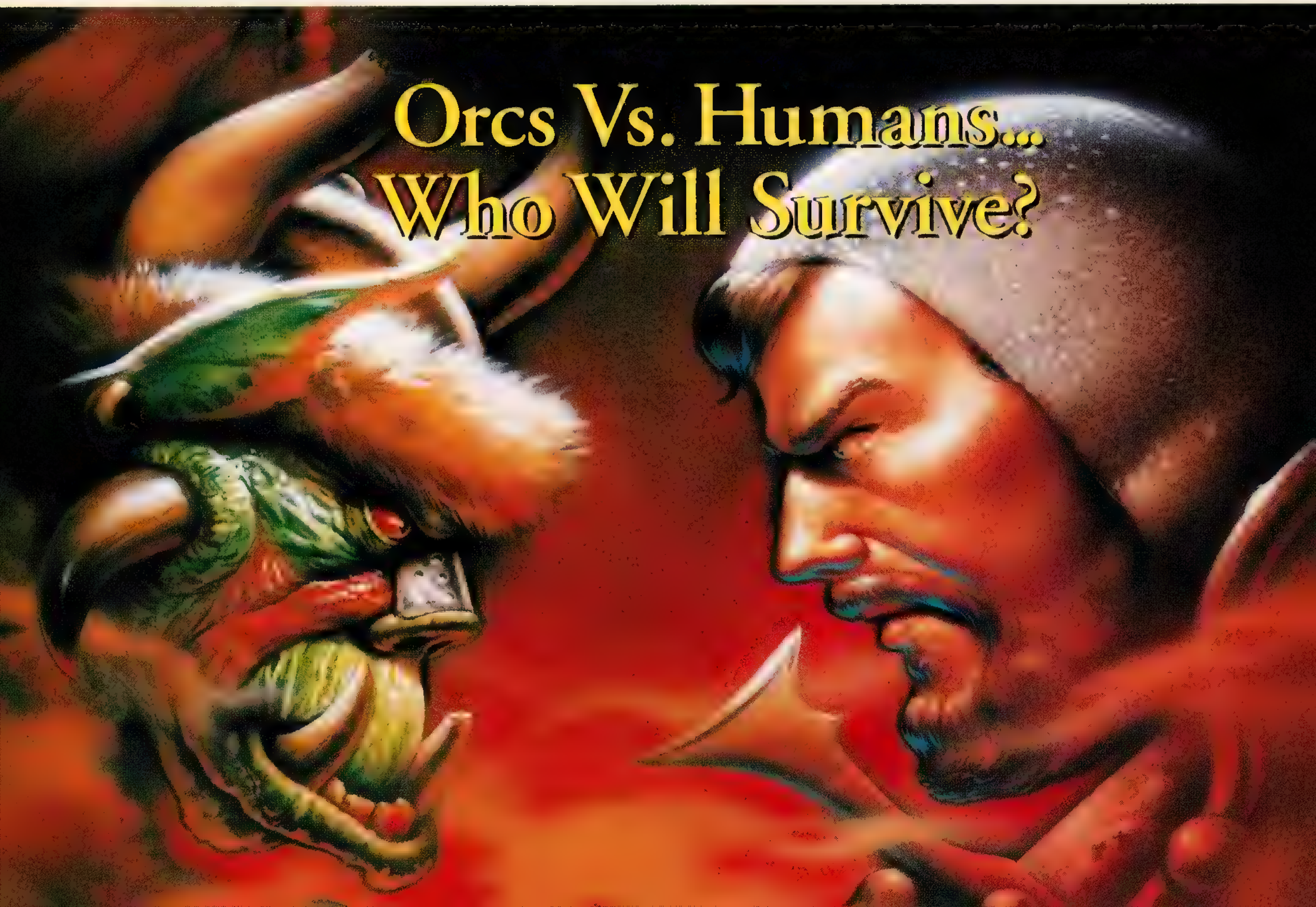
NFL Pro League Football

PGA Tour Golf 486 (EA)

Fans of the original PGA Tour program may not even recognize this revamped revision, so amazing is the graphic transformation. With looks comparable to Links 386, this product offers a lot more gameplay than its storied competitor. The lackluster AI opponents of the previous version have been cast out in favor of digitized golf legends. You may pitch out of the rough as Tom Kite, or pit your short game against Fuzzy Zoeller. The pros' styles seem to have been accurately captured, as Kite cannot nail 350-yard drives, but has a much better touch around the green. From the opening musical theme to the ripples of the quiet-but-dangerous creeks, the entire package evokes the feel of an afternoon of TV golf, complete with varied camera angles and helpful commentary. The full-motion video spots and other chrome are nice, but what makes this more than an 18-hole rehash is challenging play, matched at last by the picturesque surroundings. It looks as if Links 386 finally has a real competitor. IBM, $59.95

NCAA Basketball—Road to the Final Four 2 (Bethesda)

Bethesda Softworks re-enters the roundball arena with the long-awaited sequel to Road to the Final Four. This game promises to be a *big* improvement over the original version, which was disappointing because of its crude graphics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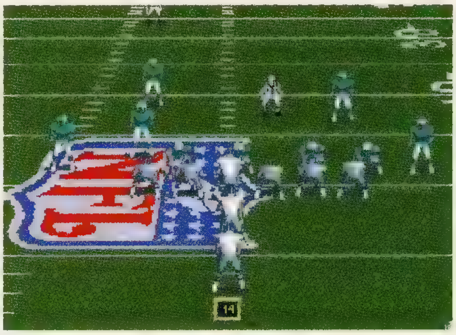
[illegible]

and a clunky interface. Bethesda has revamped the original FINAL FOUR engine, adding high-resolution graphics, cool customizable camera perspectives, and a much more user-friendly interface. Of course, all 64 teams from the 1993 tournament are present, so Dean Smiths-in-training can pace the sidelines with their favorite college teams, from the perennial underdog Austin Peay to the NCAA champion Arkansas Razorbacks (suuuey!). NCAA 2 is still a strategy game at heart, as the action mode will never be confused with NBA JAM. We'll have to wait until the game breaks from training camp, but for now, it looks as though NCAA 2 might be the best hoop sim on the market (which, as fans know, isn't saying a whole lot). IBM, $59.95

NHL Hockey '95 (Electronic Arts)

The best hockey game for the PC platform just got an upgrade, and the smooth vertically-scrolling graphics and hard hitting, fast-paced action are a welcome sight for the holidays. Some of the improved features in this new version include: better player animations, improved AI, and a bundle of new GM features. Now if we could just get Electronic Arts to bring the PC version up to the detail of the Sega Genesis version, we'd be happy. Still, this hockey-less holiday season, there's no better on-ice action than NHL '95. For a full post-game analysis, see the full review in this issue. IBM CD, $59.95


Ultimate Football

Planet Soccer (I-Motion)

We are a long way from the definitive soccer game, but PLANET SOCCER is a good step in the right direction. The 3D perspective from behind the net allows for a wonderful view of the entire playing field. Players have the potential to perform as a team, simply because you can see all of them. Passing is difficult to learn, but has much more of a real soccer feel than the cartridge-based games currently flooding the market. The statistics-based abilities of the players are similar in style to those used in games like FRONT PAGE SPORTS FOOTBALL. The excellent graphics, smooth gameplay and serious attempt at simulation should help ease the transition somewhat. IBM, $49.95

Ultimate Football (MicroProse)

This design models player style and ability at each position, and is so detailed that quarterbacks have different values for throwing on roll-outs. A unique athleticism rating measures each player's ability to perform at another position, so that versatile performers are given their due. Play-calling is a breeze, with the elegant interface allowing you to choose between lists and diagrams of dozens of runs, passes and other plays, from a variety of formations. New plays may be created easily, and the team editor allows you to

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Circle Reader Service #265

edit your favorite team, or generate one from scratch. The AI is solid, but this game really takes off in two-player mode, which includes modem play as well. Those who like to hurl the old pigskin themselves will need patience with the awkward action mode, but it's worth it for those authentic power sweeps. While sound is minimal, the animation, visual effects and game engine combine with the data to create a simulation which, while hardly ultimate, will blitz its way onto many hard drives this football season. IBM, $69.95

Unnecessary Roughness '95 (Accolade)

Geared for fast action, this release plans to generate excitement with its SVGA graphics. Enhanced by 3D Silicon Graphics renderings of actual football players, UNNECESSARY ROUGHNESS '95 could be the only football game released this holiday season with both realistic animation and actual player numbers on the jerseys. The "long bomb" offenses are not so much in evidence, and it looks as if Accolade has augmented the AI opponents to coach and play a better game. The Helmet Cam view is disorienting, but is the only thing close to putting the gamer in a helmet on the field. The highly touted Infinity Cam does allow for a variety of views, but it's questionable whether a 45-degree view from the opposite end zone is of much use. Still, the design is much closer now to what Accolade intended with the original UNNECESSARY ROUGHNESS, with better graphics to boot. Expect Al Michaels, reprising his voice-over role, to announce this entry into the football sweepstakes around Thanksgiving. IBM, $59.95

Winter Sports (Mindscape)

With nary a bobsled in sight, it's time to wax up those virtual skis for this cold weather offering. WINTER SPORTS, formerly named SUPERSKI III in Europe, offers fast action, cool graphics, and head-to-head competition on the slopes of Europe. Would-be skiers can challenge each other or the record books in six skiing-related events which include slalom runs, snow boarding, and the ski jump. Customizable options allow contestants to pick a host country, and to select what size skis or snowboard they'll be using. The first-person graphics provide a nice sense of speed and motion. More of an arcade game than a sports simulation, WINTER SPORTS provides quick, diversionary fun for fans of that white powdery stuff. IBM, $49.95

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Game Wizard Pro (Enhanced Software Design)

You'll feel like a hard-core hacker using this title. Basically a generic hex-based search engine, you can easily use the GAME WIZARD on virtually any game that's got your goat. Say you want to give your X-COM trooper unlimited ammunition; all you have to do is type in the current ammo count. Do that once more the next time you fire, and voila, the hexadecimal location of that information is revealed! You can then increase that number and even lock it into place so that it never goes down. The best thing is that, since all changes take place in your system's memory, you can't permanently screw up anything. One other plus is that you can speed up or slow down a game, something lesser WING COMMANDER II pilots might enjoy on their Pentiums. This nifty program is especially valuable if you don't have access to on-line services to download hex hacks, or just like to tinker around with your games. IBM, $49.95

The Greatest Paper Airplanes (Kitty Hawk Software)

Sometimes, making paper airplanes can be even more complicated than origami, especially if you want your creations to actually fly. THE GREATEST PAPER AIRPLANES is a Windows program that walks you through the creation of five different paper airplane styles (25 planes to-

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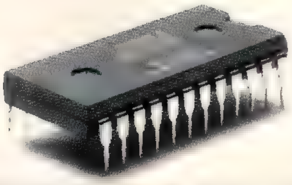

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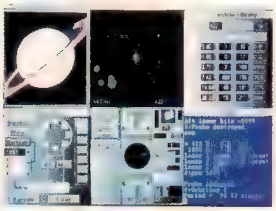

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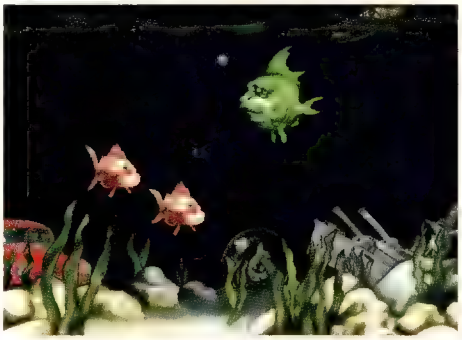
tal) from the simplest design to the complex Kookaburra Glider by means of a QuickTime-style film. Of course, it does more than teach you the origami of paper airplane building, it teaches basic aeronautic lessons on lift, drag, gravity and thrust to help you understand the why behind the folds. It also features enough cute sounds and amusing animated sequences to keep younger would-be engineers entertained, and a paper airplane-folding screen saver to add additional value to the package. Windows, $39.95

MultiMedia Cloaking (Helix Software)

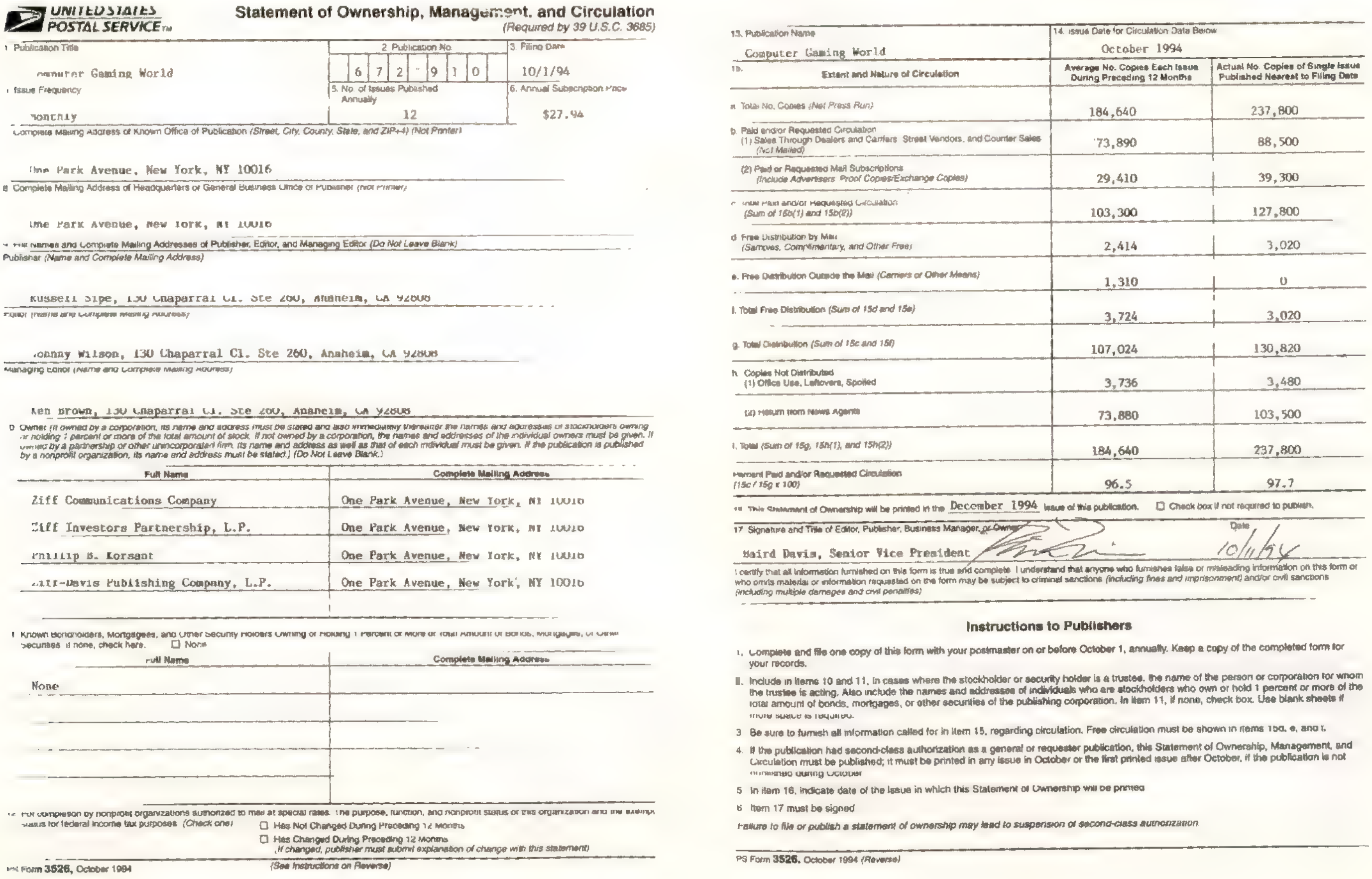
SMARTDRV, MOUSE.COM, CD-ROM drivers...all these memory-resident programs, however necessary, leech valuable kilobytes of memory, leaving minimal space for all your games. If you are like a lot of users, you're barely squeezing out 570Kb. With these multimedia drivers from Helix, though, you could push that number up into the 600Kb range. First of all, make sure that you are currently using a VCPI compliant memory manager (most are, including Microsoft's EMM386.EXE), and if you are using Netroom, make sure you have the upgrade to version 3.0. With these two qualifications met, RAM life becomes pretty nice, as the setup program automatically handles things from there. This handy set of cloaking utilities might also make your system a little happier, as most memory managers simply load your drivers into upper memory, which often causes memory address conflicts. MULTIMEDIA CLOAKING is sold separately, and is also packaged with the latest version of STACKER. IBM



Monty Python's A Complete Waste Of Time

Monty Python's A Complete Waste Of Time (7th Level)

More than just a retread of old familiar comedy, this CD-ROM is a brilliant reconfiguration of nearly every classic *Monty Python* moment, with new material contributed and performed by Terry Gilliam, Eric Idle, Terry Jones and Michael Palin. Bound together by Gilliam's distinctive animation, the program presents a surreal maze of puzzles and meaningless challenges, at the end of which lies "The Secret To Intergalactic Success." Anyone who fondly remembers those old days of exploding penguins and nasty vicars will quickly find themselves caught up in over 260 hours worth of Pythonesque humor in brilliant new packaging. In addition, the "Pythonizer" will allow you to thoroughly desecrate your Windows with "Pythicons," rude noises, embedded OLE animations, phone messages, a variety of plain and interactive wallpaper and, of course, more screen-savers. Arguably the funniest software ever devised for your computer, this easily lives up to its title. IBM, $59.95



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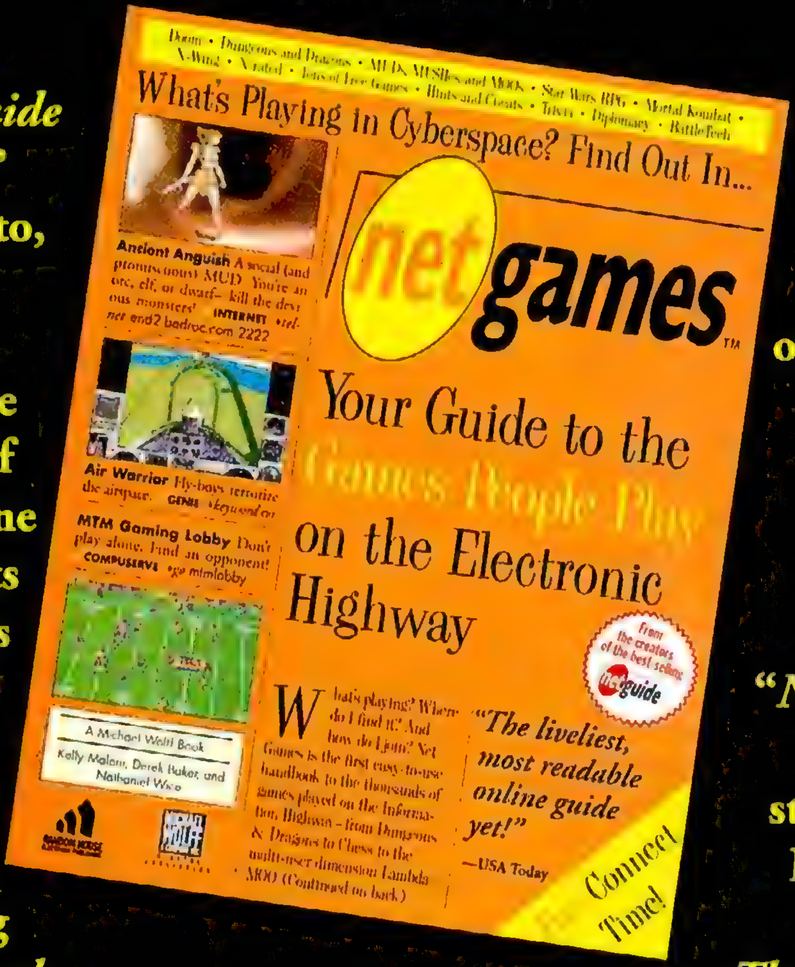

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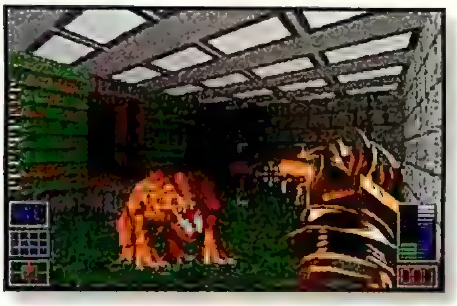

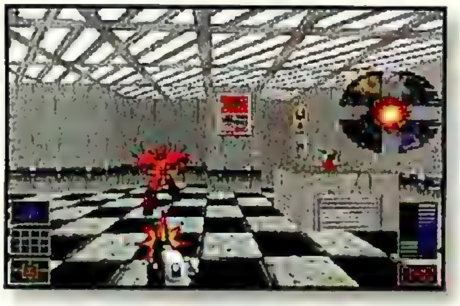

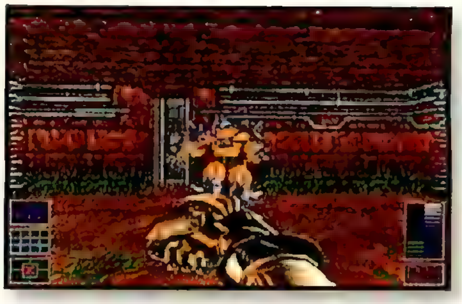

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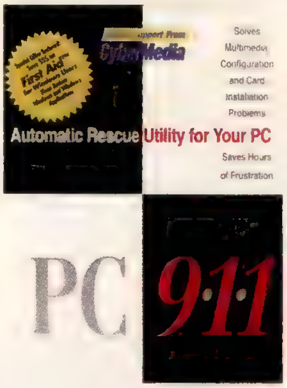
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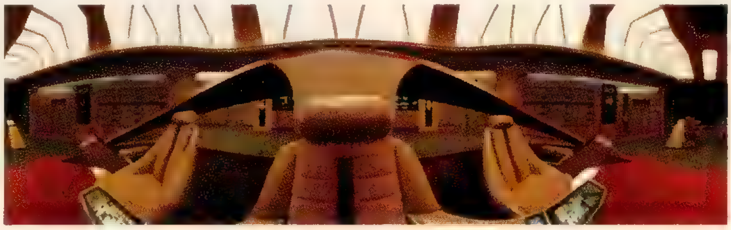
Who hasn't had conventional memory headaches? Conventional memory requirements are soaring, and device drivers keep getting bigger, particularly with the surge of CD-ROM sales. Resolve these problems by entering the shadowlands of memory management. QEMM 7.5 successfully hides all those nasty TSRs in the nether regions of memory, freeing kilobytes of lower memory. Installation and setup are fairly foolproof, helped greatly by the straight-forward and thorough documentation. Users can actually run the memory setup manager and then read the rules to their newest game while the computer automatically performs all calculations and adjustments. Although some games will still require "vanilla" boots, most of the games played here at *CGW* under QEMM have performed flawlessly. This memory manager more than pays for itself simply in terms of time saved tinkering with start-up files, particularly true if that home computer is more than just a game machine. IBM, $99.99



Star Trek Interactive Technical Manual

Saturday Night Live: The First Twenty Years (Gametek)

If the phrases, "I'm Chevy Chase and you're not," "Jane, you ignorant slut," and "Oh, never mind," were a part of your 70s repertoire of repartee, have we got the CD-ROMs for you. Relive those hysterical times of comedic yore, when perfectly normal people would stay up into the wee hours to watch slightly controlled insanity. There is a fine selection of some of the best SNL skits, from the days of Belushi, Ackroyd, Radner, and Curtin, through the Eddie Murphy years, up to the current cast. Unfortunately, the interface is not very funny at all, and the video clips are so short as to leave your appetite whetted and wanting more. IBM CD, $49.95

Stacker 4.0 (Stac)

Stac's Multimedia Stacker version 4.0 might make a nice gift for a disk-space-desperate gamer. Not only does Stacker 4.0 break the traditional 2-1 compression ratio barrier, but it also comes bundled with Helix Software's MultiMedia Cloaking drivers that conveniently save gamers up to 80Kbs of conventional memory. The drawbacks are that some games do not support Stacker (although this doesn't mean they won't run properly). Another small problem is that disk speed decreases a bit as a "Stacked" disk reaches maximum capacity. We recommend leaving at least one partition uncompressed for those problem games. If you're really strapped for cash and cannot afford a new

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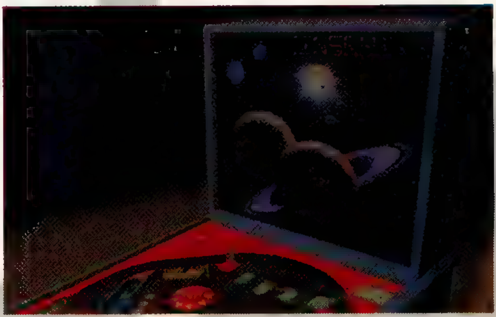

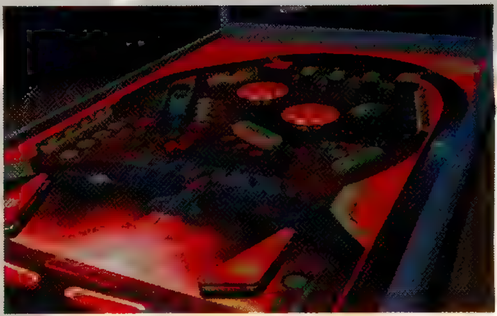

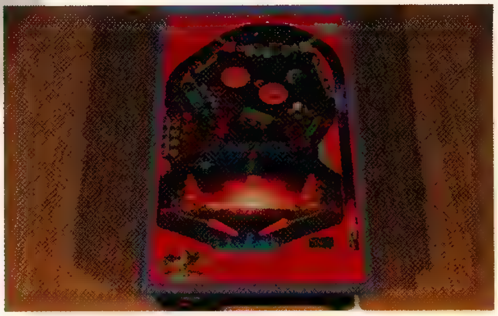

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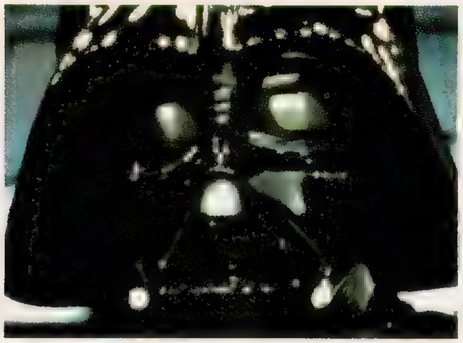

Star Wars Entertainment Screen Saver

hard drive (the prices of which are remarkably low), then you might consider Stacker as an option. IBM, $89.95

Star Trek Interactive Technical Manual (Simon and Schuster)

Most multimedia works based on other media completely fail to use the strengths of the PC. Thankfully, Keith Halper and team have made The Interactive Technical Manual very interactive and entertaining. The ability to move freely about the *Enterprise* is neat, since you can peek into places that would never be shown on TV. Whether walking down a Federation-standard carpeted hallway to the Ten-Forward bar, or picking up a medical tricorder in Sickbay for closer viewing, the level of detail is remarkable. We particularly enjoyed firing off photon torpedoes in a tactical simulation. The ability to read the fine print on plaques and equipment makes you feel as if you are party to unknown secrets; and while the most serious Trekkies have seen a lot of this before, nothing compares to being able to conduct a private tour at your own pace. The new QuickTime VR technology combines with more standard graphic techniques to create a gorgeous, reverent, and lasting tribute to the TV series. IBM, Mac, $59.95

Star Wars Entertainment Screen Saver (LucasArts)

Like the patter of tiny Bantha feet, images from George Lucas' classic *Star Wars* film dance across your computer monitor in this most entertaining screen saver. Fans of "A New Hope" will thrill to a dizzying ride down the Death Star Trench, marching Jawas, rolling Droids, a trip through hyper-space on the Millennium Falcon, spectacular battle scenes, recreations of the film's computer graphics, and some deep breathing exercises performed by Darth Vader. The program also features a wealth of *Star Wars* trivia in the form of character biographical information and spacecraft technical data and blueprints. Perhaps the most intriguing component of this package is a hidden message from series creator George Lucas in which he discusses the next trilogy of *Star Wars* films due out later this decade. The program's only drawbacks are its incompatibility with other popular screen-savers, and its mammoth system requirements (11MBs hard drive space and 4MBs of available RAM). IBM, $49.95

CHILDREN'S SOFTWARE

Arc of Doom (Sunstar)

This game proves what earthlings have long expected: Aliens are attempting to destroy intelligent life on this planet so they may have it for themselves. The world is experiencing an incredible amount of earthquakes, volcanoes, tidal waves and other disasters which cannot be accounted for by global warming or geological data. As an agent from the Redmond Institute, you must attempt to get to the bottom of the turmoil and put a stop to it, while learning about geology on the side. Attributes such as intelligence, strength and hand-eye coordination are assigned as in classic RPGs, and the entire game is filled with intrigue rather than dry fact-finding. Double agents, alien snipers and emergency getaways are but a sample of the depth of entertainment in this surprisingly sophisticated game, which should be commended for not talking down to its audience. Mac, Windows, $59.95

Be Our Guest (Disney)

Kids of all ages can revisit *Beauty and the Beast* and help make things right by solving five challenging games. All your favorite characters from the classic Disney movie, including Chip the pint-sized mug, have speaking roles as they guide you on your way. The fun includes a game of concentration, a game of "remember the music sequence," and three other mentally challenging activities. The two different difficulty settings

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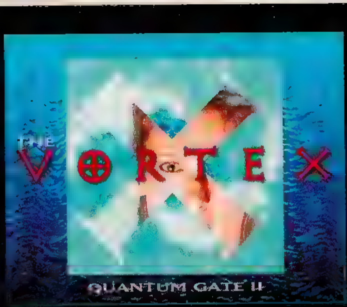
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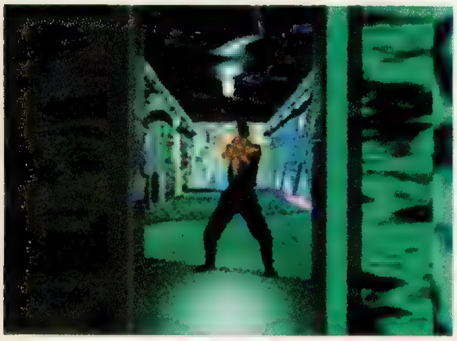


Arc Of Doom

allow for more equal competition between parents and children, although even the easy mode will require parental coaching for very young kids. The manual adds to the great graphics and game play by dispensing some great advice on how to get the most out of Be Our Guest for the entire family. In the end, Be Our Guest has a lot more appeal than most children's games, because it helps develop broad mental skills rather than focusing on learning by rote. IBM, $59.95

Living Books: Harry and the Haunted House (Random House/Broderbund)

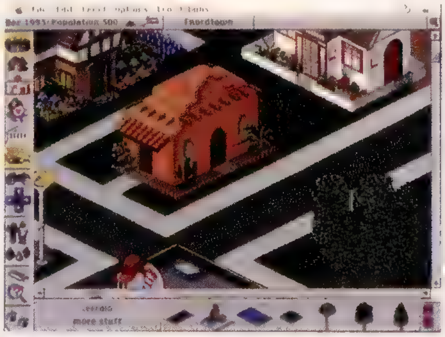
A lot of interactive entertainment aimed at kids consists of thinly-veiled educational programs which generally aren't a lot of fun for the little ones. Concerned parents may be pleasantly surprised by the latest in Mark Schlichting's popular Living Book series. Filled with adorable cartoon illustrations, this title is not only interactive and educational, it's fun to boot. Each word is highlighted as it is spoken, and after a page in the story is read, the accompanying illustration stays on screen. The screen has a number of hotspots that, when clicked on, unleash a horde of cute animations. Considering the amount of time we spent with this story, you might find yourself in front of this title more often than your kids. IBM, $59.99

Project USA (Impressions)

This edutainment title for children ages 8 through 13 teaches kids about geography through a series of activities that will hopefully make learning fun. By flying around the country in an "airplane" that scrolls across the terrain, kids can learn all kinds of data about the United States: capital cities, national parks, famous people. The Challenge Zone "arcade" allows children to compete in five different games that will teach them even more by grilling them with questions. There are also a few books that contain tons of information about the country. Although the questions are pretty challenging, Project USA has a lot more "edu" than "tainment," but it masks it well enough that it should sustain interest. IBM CD, $49.95

SimTown (Maxis)

Such dry studies as economics need no longer be a drag for pre-teens. The original adult software toy, SimCity, has finally embraced kids, who may now construct their own small towns, complete with apartment communities or even trailer parks. The interface is a simplified version of SimCity, with a friendly graphic look that encompasses such unlikely town dwellings as Moon Domes and Haunted Houses. While the kids are building movie theatres and Burger Barns, they are also learning about supply and demand, pollution, and the realities of running a business. To keep the game on a more personal level, the individual sim-citizens must be designed from scratch, find a place to work and play, and even own pets. The screen hides a number of colorful animation sequences and other "Easter eggs" which keep the kids exploring, and offers enough advice without making the game too easy. A good program for children this holiday season, provided they can get Mom and Dad to stop playing it long enough. Mac (IBM to follow), $59.95

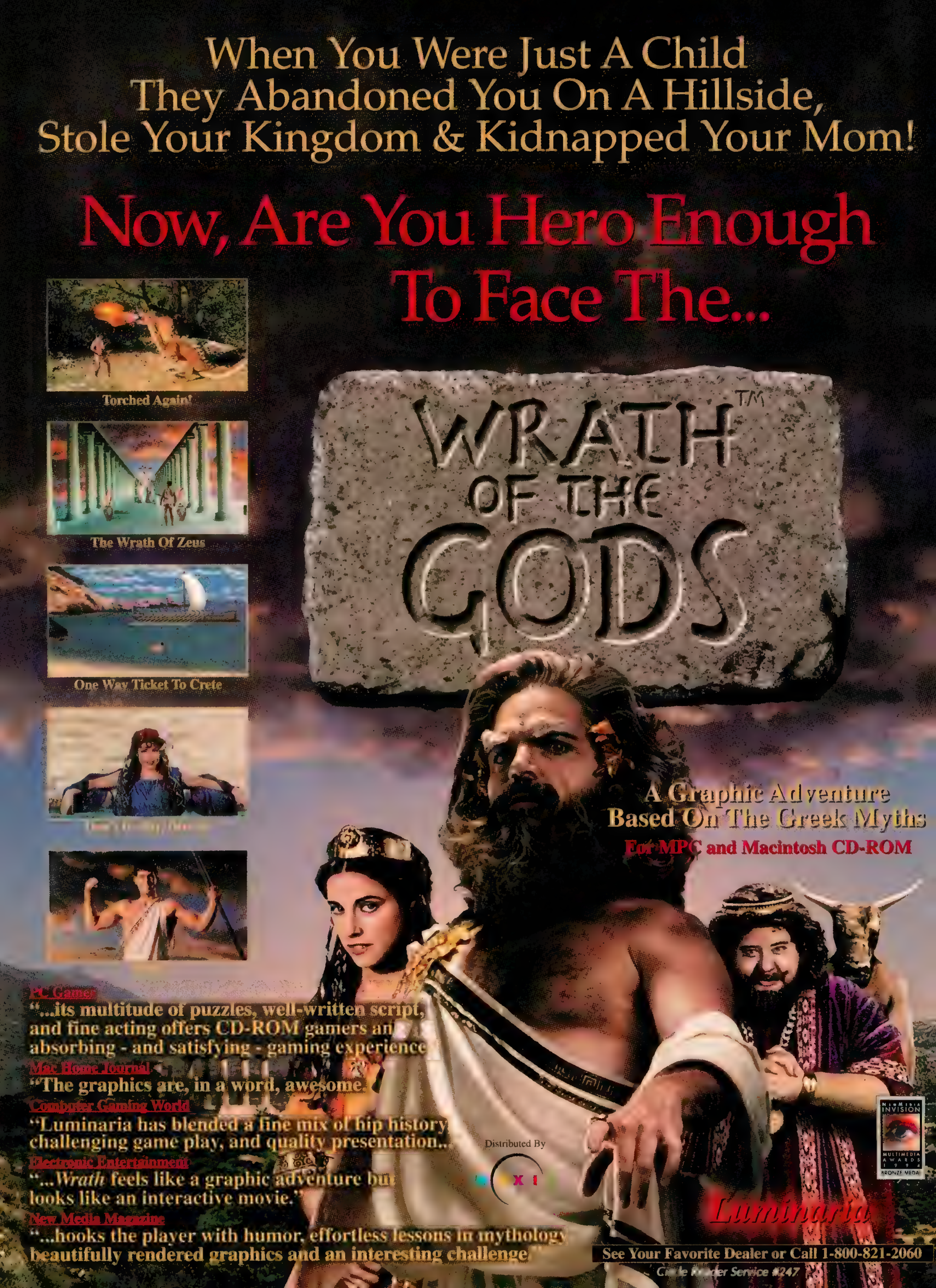


Sim Town

Where In The World/Where In The USA Is Carmen Sandiego? (Broderbund)

That elusive, brilliant criminal mind is on the loose again, this time on your MPC system. In these two separate games, Carmen and her gang of villainous miscreants pilfer dozens of famous landmarks.

It feels
NO PAIN.



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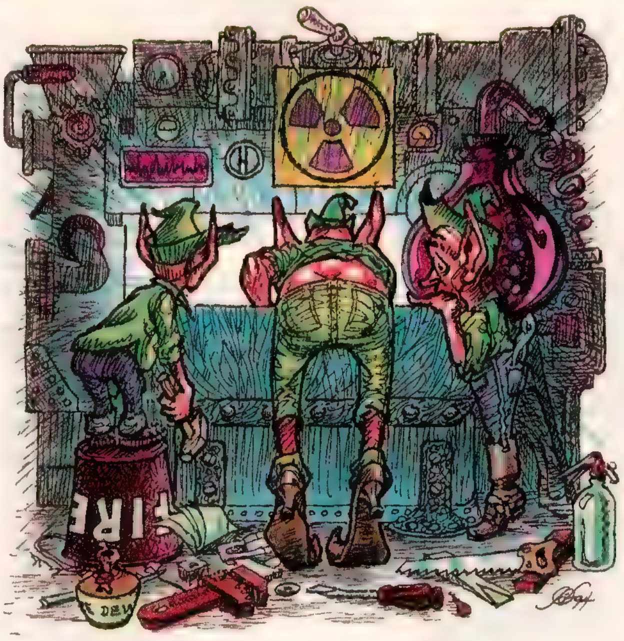
Relying on geographical clues as well as descriptions of the perpetrators, it's up to you to stop the crime and apprehend the treacherous villain. In addition to providing a host of geographical facts, the game offers as much culture as the typical pre-teen can hope to absorb. This noble task is made easier on these enhanced CD-ROM versions, due to the larger number of digitized photos and audio. The Music of the World CD is particularly cool, and the USA adventures feature regional accents. These Carmen titles are much richer than the floppy versions, and a good reminder that the best teaching tools are those that truly entertain rather than force-feed information. IBM, Mac, $89.99



HARDWARE

YST-MSW10 Powered Subwoofer (Yamaha)

Nothing quite rounds off the gaming experience like a subwoofer. The YST-MSW10 Powered Subwoofer is a 6.5", 25-watt fire-breathing monster. It sits there innocently enough, with three switches: power, volume, and a button to cut the higher frequencies out. When invoked, however, this thing really puts the "Ooo" in "Ooomph!" Sitting on the desk or on the floor, the YST-MSW10 can really belt out the lows—down to 35Hz. If you're using those cheesy multimedia kit speakers, wait until you fire this baby up. We tested the unit while playing DOOM, and the thumping soundtrack rocked our world (and the rest of the office). Kicking in the afterburner in a combat flight sim will take your breath away. We can think of no single upgrade to your system which will have as much impact, but make sure you upgrade to wavetable synthesis first. $199.99

Vivid 3D Pro (Nu Reality)

This little multimedia monolith really packs an aural punch. Using SRS technology originally developed at Hughes, it processes sound and creates a 180-degree sound field around you. This will bring surround sound to your two speaker system by recapturing the ambience lost in the original recordings. The end result is extra life for your games. So, you thought your killer wavetable sound card, speakers and subwoofer meant that you were experiencing the epitome of multimedia? We tested the VIVID 3D PRO and found ourselves ducking: sound seemed to come from everywhere. It really messes with your head. While NuReality has a line of SRS related products, the VIVID 3D PRO comes the closest to the high end Hughes AKA-100 SRS module and is very well suited for computer games. $149.95

386 to 486 Clock Doubled Upgrade Processor (Cyrix)

This chip from Cyrix really delivers on its promise. The do-it-yourself kit comes with a chip pulling tool, a heat sink, and enough documentation and software utilities to get you upgraded in no time. There are upgrades for 386SX16 through 386DX33 CPUs. We installed the Cx486DRx2-386/486 (easy enough name to remember) model on two separate 386DX-33 rigs and they worked flawlessly, with no crashes. There is also a software-enabled 1KB cache which adds even more speed, although it might cause problems with some games. The bottom line is that old, slow 386DX-33 rigs now work at least as fast as 486DX-25 machines. Not quite the blazing performance

It shows
NO MERCY.

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of a 486DX/2-66, but a cheaper way to avoid the 386 Blues. $399

DX4 Overdrive Processors (Intel)

Boost your lackluster 486SX-25 up to 75 MHz, and instill your shy little 486DX/2-66 with the confidence of 100MHz. The upgrade package comes with a heat sink pre-attached, a chip pulling tool, comprehensive documentation, and toll free technical support. We installed the DX4 Overdrive Processor in an off-the-shelf VESA local bus system, and all we did was pop the hood, replace the chip, and reboot the system. Our test rig has been running like the "Miss Budweiser" on a glassy lake ever since. You're probably thinking that we're nuts putting a 3.3-volt CPU onto a 5-volt motherboard, but the DX4 Overdrive Processor has an on-chip voltage regulator that handles the power conversion. A 16KB internal cache is also nice. It ain't cheap, and the Pentium Overdrive chips are coming, but if you need speed now, check this out. $649

Vivid 3D Pro

Premium Deluxe Multimedia Kit (MediaVision)

This upgrade package features a very fast external double speed CD-ROM player (180ms access time), which also doubles as a portable audio CD player. In addition to this gem, you get a killer sound card—the Premium-3D—that has both built-in SRS and a Wave Blaster-compatible feature connector. You also get a SCSI interface and real OPL-3 (no emulated FM for your older games here). The whole kit is easily installed, and the included video even gives tips on properly installing the software. The Premium Deluxe Multimedia Kit comes with 15 bundled CD-ROM games, including Return to Zork. The Reno CD-ROM drive can also be purchased separately. $599 ($349, CD only)

Diamond Multimedia Kit 5000

Diamond Multimedia Kit 5000 (Diamond Multimedia)

Of all the traditional multimedia kits out there, this one deserves special mention. It's the first we've seen that includes a Quad Speed CD-ROM drive. In addition to the Teac CD-55A CD-ROM, there's a 16-bit Diamond Sound sound card with a genuine Yamaha OPL3 chip, an MPU-401 interface, and a feature connector for wavetable daughtercards. Clearly, the stars of this package are the Teac quad speed drive and the games bundled with the kit, which include not the usual shovelware, but real games like Myst, Rebel Assault, Sim City 2000, and Doom. We can't think of anyone who would be disappointed to find this under the tree. $599

Reel Magic Light MPEG Player (Sigma Designs)

Tired of looking at postage stamp-sized animations in your games? Full screen, full motion MPEG video playback is definitely the way to go, and the Reel Magic Light is probably the best way to do it. Games like The Horde and Return to Zork look great running full screen video at 30 frames per second. Installation isn't so bad, as all you have to do is run a cable from the line-out on the Reel Magic Light into the line-in of your existing sound card. Just tweak the software, and you're good to go. Unfortunately, the recent trend in entertainment software is for game publishers to get their titles to the stores first, then worry about MPEG versions later, which usually leaves Reel Magic users in the cold. $349.99

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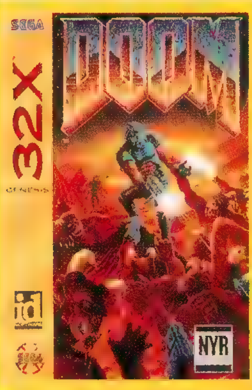

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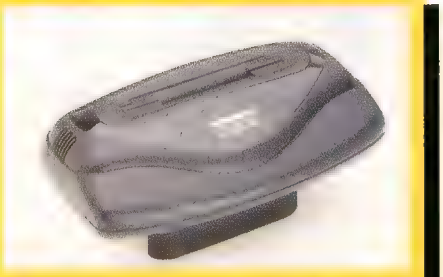

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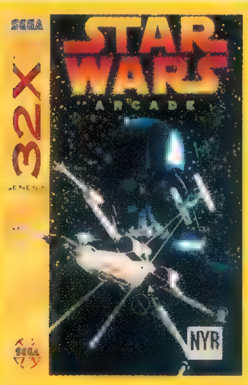

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CGW DEC B

Circle Reader Service #200

In Search Of The Ultimate...

Game Machine

by Paul C. Schuytema

You traded in your IBM compatible 286 on a 486-33 two years ago, and now it seems that game technology is ready to pass you by. Flight simulators offer impressive graphics with groggy frame rates, and your 170 MB hard drive is filled to capacity. Is it time to think about trading up to a Pentium system? Should you wait for the next generation PC? Just what makes a great computer, one that will give you years of good play and work?

Flipping through the pages of *Computer Shopper* at the local grocery store, I notice that Pentium systems cost hundreds less than the 486-33 I purchased two years ago. Could this be right? I walk over to the local college library and flip through old issues of *Byte*. In 1982, Cromeco was selling "the first affordable hard disk computer for under $10,000." What gives? Back in the mid-1970s, you could buy an AMC Gremlin for $1,995 (the last car to sell new for under $2k). Now, a stripped-down Neon costs $10K. Have prices gone haywire?

Hardly, it's just capitalism at its best, helping and hurting us consumers. The huge demand for PCs has created intense competition and brought about an incredible technological revolution, and now top-flight Pentiums cost the same as an old Atari 800 system. On the downside, the technological wave is surging so fast that a PC's life expectancy is counted in months rather than years. But the time is right to take heart. The wall is coming.

Intel, with the design of their Pentium CPU chip (sometimes called the "586"), has taken the x86 architecture just about as far as it will go. They've walked the long plank and now they must jump. In the future, chips like the PowerPC chip and other RISC (Reduced Instruction Set Chip) chips may be the platform of choice. The good news is that all of that technological retooling will take time, and a 90 MHz Pentium is a beast of a machine. So my advice (which I will elaborate on below) is that now is the perfect time to buy a Pentium. You'll probably get as long a life as you can expect from any PC, and it will still be a while before game software will push a Pentium to the ragged edge.

PENTIUM POWER

The Pentium chip is Intel's latest x86 processor, which is based on an architecture and core instruction set that is over 16 years old. The chip itself is a massive piece of multi-layered silicon, a full two inches square and boasting over three million transistors. While the essential design of the Pentium is shared with the earlier x86 chips, the chip is a 32-bit processor with a 64-bit internal data bus, meaning that it can chomp data in huge amounts compared to the old 16-bit 286. In addition to taking a bigger bite of data each cycle, a Pentium can run at over 90 MHz, which is blazing speed compared to an old 8 MHz 286.

An important factor when thinking about x86 processors is that they are all "backwards compatible." This means that any program written for a 286 will run on a 386 and so on. Each higher level of PC processor shares the same core instruction set, and Intel has gone to great pains to ensure this compatibility so that consumers can use their existing software with the new processor.

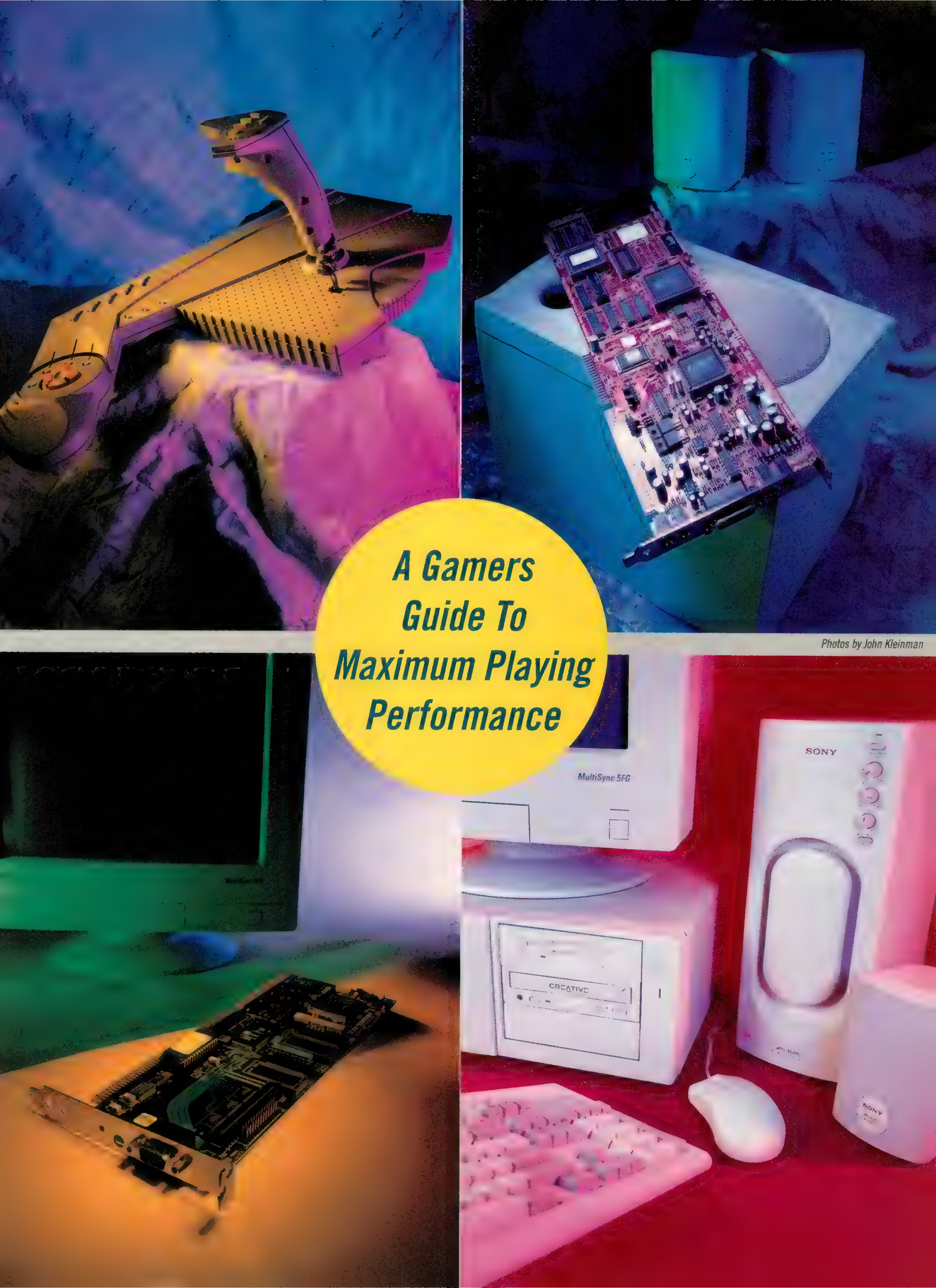
As of today, the most powerful "straight PC" processors are the 90 and 100 MHz Pentiums. The speed difference between a 90 and a 100 MHz chip is negligible, and the cost difference is considerable, so consider the 90 MHz Pentium as the "best of the best."

THE MAGIC BUS

Once you decide that your next system will be based around a Pentium 90 CPU, you need to carefully consider the other components of your system. After all, you will only be interacting indirectly with the Pentium chip. It's your input and output peripherals that will be your means of interaction with the PC.

The first question to resolve is whether to opt for a PCI (Peripheral Component

A Gamers Guide To Maximum Playing Performance


MultiSync 5FG
SONY
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Photos by John Kleinman

Interconnect) local bus or a VESA (Video Electronics Standards Association) local bus system. Most Pentiums are now local bus systems, meaning that the computer's motherboard has up to five long expansion slots connected to the local bus. In a PC, most expansion slots are on what is called an ISA (Industry Standard Architecture) bus, which is a 16-bit data path. You can stick modems, graphics cards, sound cards or what have you into these slots and be on your way. The only problem is that from the 486 to the Pentium, the processors work in 32-bit data chunks (though the Pentium "eats up" data in 64-bit chunks internally). A local bus is a 32- or 64-bit data path straight to the CPU, meaning that local bus cards can process data faster than the standard ISA cards, with the speed increase being several orders of magnitude.

The PCI and VESA local buses are standardized approaches to local buses, set up by a consortium of component manufacturers, which means a VESA or PCI local bus card will work on any local bus motherboard with the same configuration. This is good news for the consumer, but just what is the difference between PCI and VESA? From your point of view, not all that much. Both are "wide bandwidth" data buses operating at roughly the same speed (though a VESA local bus operates at a slightly faster frequency). The PCI bus standard was designed to be a little more forward thinking than the VESA bus, because of Intel's "plug and play" specification, and Intel has been pushing the bus very heavily in the last few months, meaning that PC clone manufacturers are churning out more PCI systems now.

Currently, the PCI and VESA bus standards are two essentially equal competitors duking it out for market share, but the tide is shifting towards PCI. If you have a VESA system now, you've got a solid upgrade path ahead of you, but if you are buying a new system, seriously consider tracking down a PCI system.

MICRON PENTIUM 90
MAG
MICRON

THE EYES HAVE IT

The most important component you will stick into a local bus slot will be your video card. For playing games, you will need a card that handles DOS graphics with speedy precision. Discerning the difference between cards is a difficult task, though, since the advertising is directed toward Windows users. If you look at ads touting the speed of a graphics card, they will talk of Winmarks as a measure for speed, which is essentially a Windows bitmap drawing benchmark.

What you need to seek out is pure DOS speed. This can be in the form of character processing or VGA frames computed per second. Programs such as Landmark and 3D-Bench can give you hard and fast numbers with which to compare cards. For more information, be sure to check out the video card survey in this issue.

The other half of the dynamic video duo is the monitor, and this is where you can spend money by the bushel. Use the basic rule of thumb of "buy as much monitor as you can afford." For serious game playing, consider a 15-inch monitor as your base premium monitor. You will want to find a multi-sync monitor that automatically adjusts to a myriad of resolutions, and of course, be sure that the monitor is non-interlaced if you want to avoid raging headaches. You will also want to look for a monitor with a dot pitch of .28 mm or less for the sharpest possible picture.

If you can afford it, get yourself a 17" monitor, but consider that to be the maximum size. Twenty-one inch monitors are great for desktop publishing, but since so many of today's games are still at 320 x 200 resolution, the image will look blocky and out of focus on the mammoth field of a 21" screen.

IS THERE ROOM AT THE INN?

Your hard disk is the workhorse of your PC, and you need to purchase as large a disk as you can afford. Consider a 400+ MB hard disk as the minimum size to accept.

When considering hard drives, there is less confusion than with video cards, but you will want to look at several factors. As mentioned above, size will probably be your first concern. Even with a 430 MB hard drive, you will find yourself filling it up rather quickly if you are an avid gamer or if you plan to use the machine for Windows.

While there is a good selection of hard disk compression programs out there, consider this as a last resort since only a minority of the games are fully tested to work flawlessly with DoubleSpace or Stacker. If you do decide to compress your disk, do some research into the best product, and do not compress your whole drive; leave some megabyte acreage to place your favorite games.

Another factor to consider in a hard drive is access time. As a rule of thumb, the larger the drive, the faster the access time (since the drive will have to do less work, physically, to locate your data). Access time is measured in milliseconds (ms), and any drive which offers 15 ms access or less will be a good bet.

CONTROLLING THE HARD DRIVE

Hard drives are linked to your computer by way of an input/output access card. For years, these have been rather standard, cheap IDE (Integrated Drive Electronics) cards, but today there are many options. You can purchase a SCSI (Small Computer Systems Interface, pronounced "scuzzy") or an enhanced SCSI-2 drive card, which will be considerably faster in access time and throughput than an IDE drive, but the drive and card still tend to be quite expensive. Another drawback of SCSI drives is that, depending on your setup, there might be several drivers that you will need to load at boot-up, and unless you carefully manage and tweak your CONFIG.SYS and AUTOEXEC.BAT files, you will find yourself hard-pressed to find enough conventional RAM to load many of today's games.

The SCSI card does have a major advantage: you can string together up to seven devices from a single controller card. This is true even with the SCSI port found on some sound cards. For you power-hungry users out there, this means that you can run a CD-ROM, a removable hard drive, a tape backup and a second system hard drive all from one card.

More and more, Pentium systems come bundled with a local bus (PCI or VESA) hard drive controller, which means greater data throughput (the drive still has the same access time, but will have considerably faster data "throughput").

There is also an EIDE (Enhanced IDE) specification for local bus controller cards.

0-90MHz In One Microsecond

CGW Takes Two Pentiums To The Test Track

To give you some real numbers to mull over, CGW put two Pentium 90 MHz systems to the test. We looked at DOS VGA graphics performance, hard drive performance and raw processor speed.

Note that these systems, while both Pentium 90 MHz machines, are deliberately outfitted with different components to illustrate some of the factors to consider when making your next purchase. A "victory" by one system in one category might not necessarily mean that it is the superior system.

FALCON NORTHWEST MACH VP 90 MHz
16 MB of RAM
1 gigabyte EIDE hard drive
a quad-speed CD-ROM
VESA local bus Diamond Stealth 64-bit graphics card (with 2 MB of video RAM)
Sound Blaster 16
Sony D2K satellite/subwoofer system
Ideki Vision-master 17" multi-sync monitor.
Price as tested: $3,595.

MICRON PENTIUM 90 MHz family multimedia system
8 MB of RAM
405 MB IDE hard drive
double-speed CD-ROM
PCI local Bus Diamond Speedstar 64-bit graphics card (with 1 MB of video RAM)
Sound Blaster 16
Koss HD/4 powered speakers
Mag 15" multi-sync monitor.
Price as tested: $2,995.

3DBench results (measuring VGA frames per second):

Falcon	71.4 fps
Micron	66.6 fps
"standard" 486-66	50 fps

3DBench is a benchmark developed by Superscape to demonstrate virtual reality development software. It has been used by gamers for a long time to measure graphics performance.

Landmark speed test results (CPU speed):

Falcon	577.25 MHz
Micron	520.66 MHz
"standard" 486-66	223.00 MHz

Landmark is a test of raw processing speed. The numbers represent the speed (in MHz) that a 286 processor would have to operate at to achieve the same performance as this system.

Coretest hard drive performance:

	avg. seek time	MB/second throughput
Falcon	6.4 ms	8.24 MB/second
Micron	13.5 ms	4.47 MB/second
"std." 486-66	13.7 ms	2.60 MB/second

Coretest is a standard measure of hard drive performance. With "seek times," the lower the number the better the performance. Throughput is a measure of how much data a hard drive can deliver per second.

These test results show three things. First, that both Pentium 90 systems blow the doors off a blazing-fast 486-66 (which, by the way, was decked out with 16 MB of RAM and a VESA local bus video card). Second, the FALCON performed slightly better in both video performance and raw processor power. The raw processor power advantage, while slight, can be attributed to design differences in the motherboard. The video advantage shows that the VESA DIAMOND STEALTH card (with 2 MB, remember) performs better than the PCI DIAMOND SPEEDSTAR. The DIAMOND STEALTH card, in either VESA or PCI versions, is quite simply one of the fastest video cards you can buy.

Finally, the major speed differences in the hard drive access rate is due to the larger hard drive size on the FALCON MACH VP (remember, a larger drive has faster access rates). The difference in throughput is due to the fact that the FALCON system uses a local bus hard drive controller and the new EIDE standard.

These cards also connect to standard drives, but feature blistering throughput levels approaching 10MB/second at a considerably lower cost. It's still too early to tell, but EIDE might be the wave of the future.

One thing interesting to note is that both SCSI and IDE controllers are available for ISA, VLB, and PCI buses, while EIDE as mentioned above, is available only for local bus systems. Combined with its fast throughput and no-brainer card installations, EIDE could give SCSI a real run for its money. EIDE will compete with SCSI to support several peripherals including next generation EIDE CD-ROM drives.

THANKS FOR THE MEMORY

Your system's RAM (Random Access Memory) is the pasture for your programs to frolic within, and you most certainly need a healthy plot. Consider 8 MB as a minimum level of RAM, with 16 MB as the maximum. If you add more than 16 MB of RAM, you might run into some potential addressing problems. For now, 16 MBs will be more than you'll need for any top-flight game program. In fact, unless you play a lot of games that run in "protected mode" (such as DOOM II), the games won't access anything beyond 8 MB of RAM. In the coming months, more and more games will be released with a DOS extender that gives the programs free reign over multi-megabytes.

CD-ROM IN A DAY

CD-ROM is evolving into the delivery medium of choice, and it makes sense. For a consumer, getting one CD-ROM disk instead of a dozen floppies makes life that much easier. For the game publishers, it's cheaper to cram their megabytes of data onto a single disc.

Because of this trend, and the availability of more and more games that play directly off the CD, consider a CD-ROM drive as an essential component of your new system.

If you read the literature, you will notice that there are single speed, double speed, triple speed and quad speed drives out there. This speed smoke screen refers to either the CD access time or the data transfer rate. For the latest quad-speed drives, you can expect about 195 ms access time and sustained data transfer rates of about 600K per second.

Consider a double-speed CD-ROM drive as the minimum, but splurge for a quad speed if you can afford it. Triple speed drives are really "transitional" devices, and they won't be around for long. If money is tight, you can pick up a decent double speed drive for well under $200.

An important issue to consider is the interface for the CD-ROM drive. Many which come bundled with preassembled systems have their own proprietary interface card. Others which come bundled with sound cards use circuitry on the card to control the CD drive. While a sound card controller will save you from some potential configuration problems, you will need to think carefully about upgrading your sound card, since any new card down the road will also need to control your CD-ROM drive. In this situation, you might want to consider a SCSI controller, as you can then upgrade either your sound board or CD-ROM and know that they will both understand "SCSI-speak."

FALCON NORTHWEST MACH VP90

TACTILE RUMINATIONS

Input and output devices are your direct channels of communication to your Pentium processor, and you want them to be the best possible.

First, consider the two components that you will use most but no one really thinks much about—the keyboard and the mouse. Most "clone" systems come bundled with the cheapest keyboard and mouse systems around. Consider asking your computer dealer to upgrade them both, or leave them out entirely and track down quality components yourself.

Next, consider high quality control devices (joysticks, wheels, etc.). If you read *CGW* regularly, you know that there is a myriad of controllers to choose from, and if you shop around, you will discover that joystick prices range from under $10 up to $130. Basically, you get what you pay for, but be warned that in some of the top line control devices, you are paying for extra buttons which might not be supported by all programs. There is a move now to make these high-end joysticks user-config-

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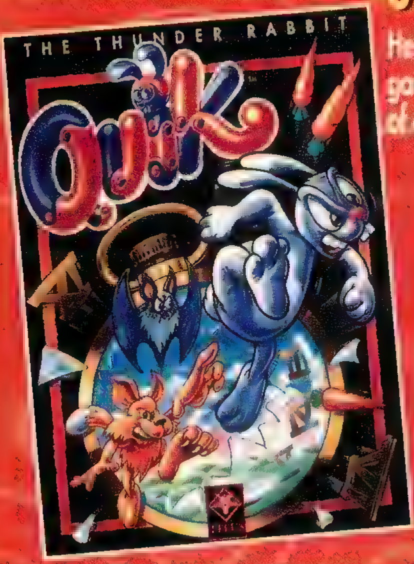
PC CD-ROM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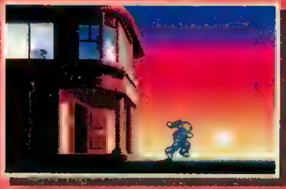

The infernal world of perilous and hazardous races!

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PC CD-ROM

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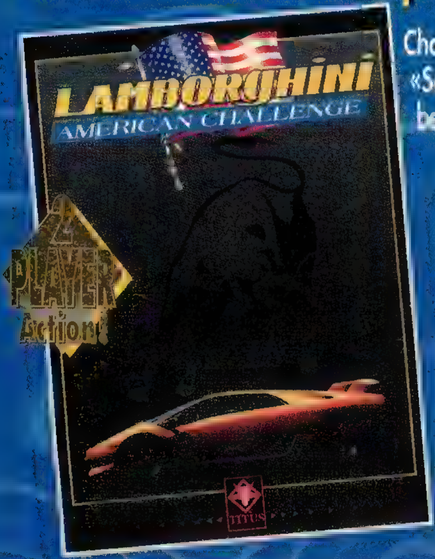
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TITUS Software Corp. : 20432 Corisco Street · Chatsworth CA 91311 · USA · Phone (818) 709-3692 urable, making the extra buttons emulate keyboard equivalents. This generally means that you'll have to do some minor configuring to set up the control device to work with a particular game, but the work will be well worth it.

With a control device, it is imperative that you try before you buy. Try out a friend's or stop by a software shop to check out the device. You want one that fits your hand and feels solid. For more information, see the control device survey in this issue.

With the blazing speed of a Pentium 90 processor, it is also mandatory for you to track down a separate game controller card (the joystick ports on your sound card might not be able to handle the speed of your processor, resulting in jerky control). Both CH Products and Thrustmaster make dual-joystick controllers that are up to the task of high-speed gaming, and neither will cost you an arm or a leg. See the control device survey in this issue for more options.

THE SOUND AND THE FURY

While I won't spent too much time on the multitude of sound card options, I will say that a good sound card will be worth its weight in gold. You will need, for today at least, Sound Blaster compatibility. For most games, to generate digital sound, a Sound Blaster Pro is all you need (in fact, in this humble writer's opinion, some of the pricier 16-bit cards don't sound as nice as a basic SOUND BLASTER PRO). For music, you can settle for the synthesized music on a basic card, or opt for a "wavetable" General MIDI card. Typically, a wavetable card will cause you more configuration "challenges," but once you've heard TIE FIGHTER's General MIDI score through a quality wavetable synthesizer, you can't go back to standard FM synthesized music.

Sixteen-bit cards are really more hype than they're worth for us in the game playing community. Most games use 8-bit sound since 16-bit data files are huge; one minute of uncompressed 16-bit audio sampled at a high rate (like 48KHz) can easily chew up ten megabytes of hard disk space. However, as more and more games are being delivered on CD-ROM, and the speed of these drives is improving, this might only be a temporary limitation.

For myself, a basic SOUND BLASTER PRO coupled with a ROLAND SOUND CANVAS SCC-1 GS General MIDI card is the way to go. If only the SB PRO had a feature connector to attach a ROLAND SOUND CANVAS daughter card, then we'd have a one-slot solution for all our sound woes.

If you do decide to get into General MIDI, then seriously consider one of Roland's SOUND CANVAS products. Several of the game design studios compose their music on SOUND CANVAS synthesizers, and playing the score back through the same card is a sure-fire way to hear the music just as the composer intended it to be heard. For more information, see both the sound card and wavetable daughter card surveys in this issue.

PARTING SHOTS

Now is definitely the time to consider purchasing a new system. Prices are low and you can pick up a 90 MHz system that will serve you well for years for less than the price of a 486-33 only two years ago.

Just remember to consider all of the system's components when shopping around. With the myriad of options out there, there is no reason that you can't track down and assemble the system of your dreams. Many of the mail order computer companies now approach their systems in a much more modular manner, allowing you the option to specify exactly the components you want.

Do your research, don't accept second best, and your hard-earned dollars will garner you a game machine that will remain at the cutting edge for...well, a while at least.

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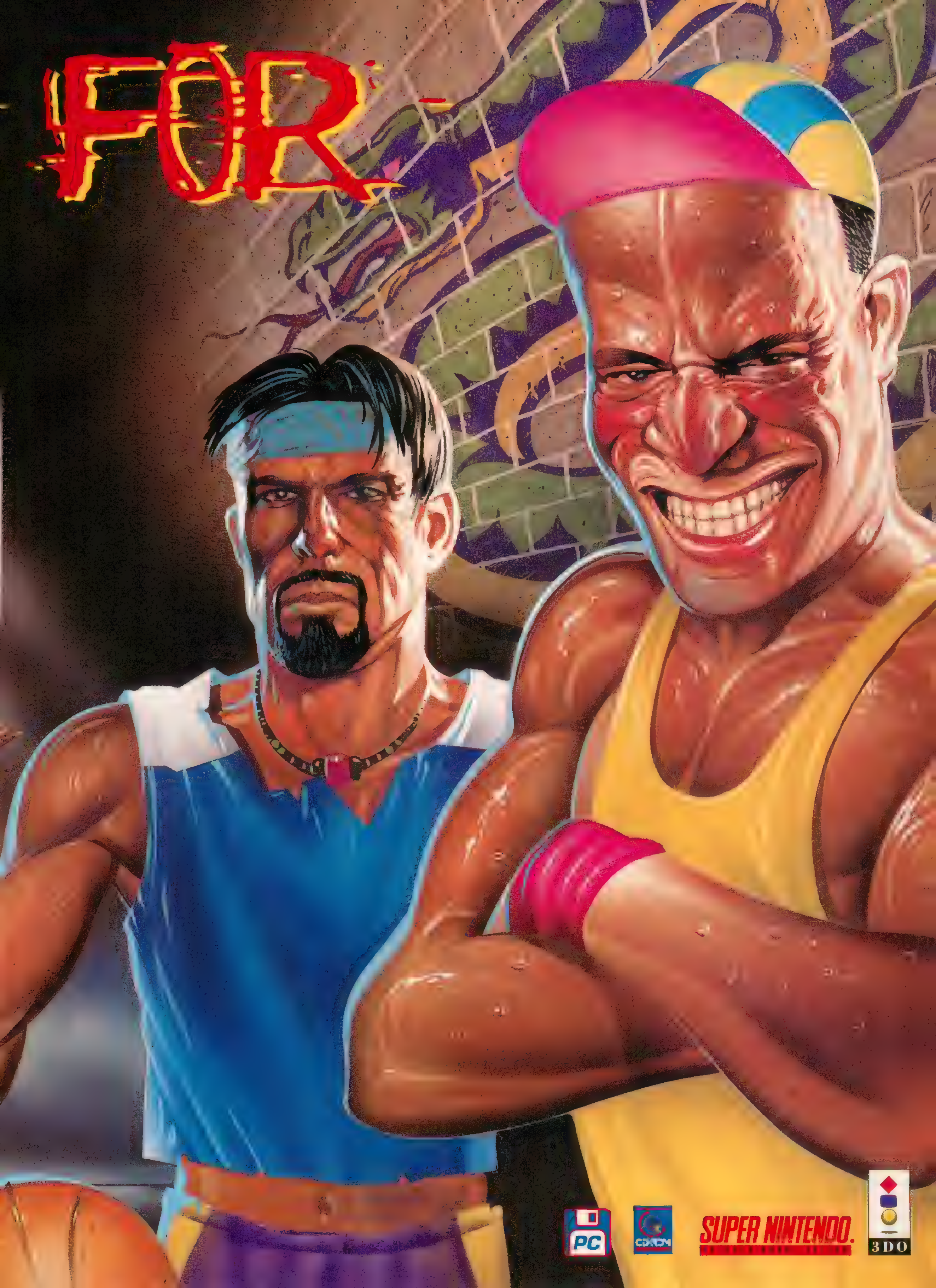
Circle Reader Service #303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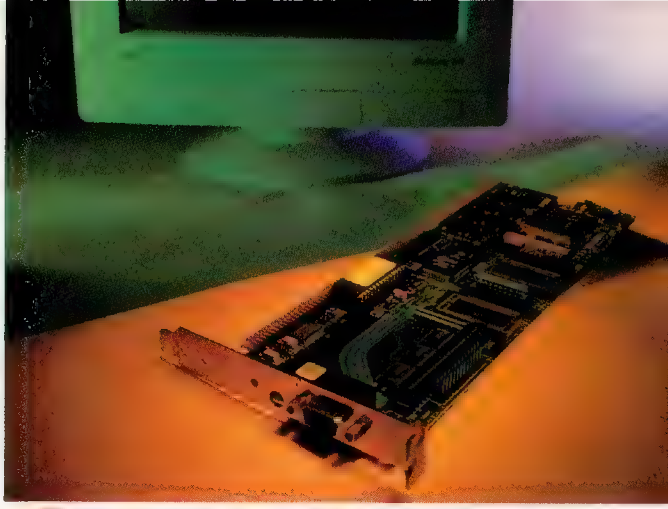
In Search Of The Ultimate... Video Card



by Loyd Case

Fred had been saving all of his disposable income for six months; even his spare change went into a jar and was carefully collected. Finally, his account balance grew large enough, and PC prices dropped low enough that he could afford the game system of his dreams. His spouse, who likes the idea of having a multimedia system in the house for the kids, indulged his whim, and he placed the order for his dream system: a 90 megahertz Pentium system, complete with a huge hard disk (1 Gigabyte! He would *never* run out of disk space again!), a 17-inch monitor, and a video card that had received top honors in several respected computer magazines.

The wait was interminable (well, it was two weeks, but it *seemed* like forever). Finally the day came. Fred came in from work, saw the look in his wife's face, and knew it had arrived.

It only took Fred 45 minutes to unpack and set up the system. DOS and Windows were preloaded. Fifteen minutes after that, he had Microsoft Flight Simulator 5.0 installed. He typed "FS5" and waited.

The intro screen came up briefly, and then there he was, at Meigs Field in Chicago. He had turned up all the detail levels, and he was ready. He throttled up and watched as each frame slowly painted itself onto the screen...*chunk...chunk...chunk...* at a steady four frames per second.

It was said that the howl of anguish was heard two counties away.

SEX, LIES & VIDEO CARDS

Fred's story, though ficitious, has occurred altogether too often lately. As PC systems become increasingly sophisticated and powerful, the number of choices any buyer needs to make simply goes up. We increasingly need to trust other sources—product reviews, friend's references, and so on—for information as we move to higher performance systems.

Some games are not dependent upon graphics performance, but these games are becoming increasingly rare. More and more, graphics performance is becoming an important part of modern computer games, even for strategy games which once didn't seem to need it. Other games, like flight simulators or fast scrolling shooters, require enormous graphics resources on the part of the PC.

There are a number of performance issues to worry about as you upgrade to faster systems. Certainly raw processor speed is important, as is hard disk. However, nothing has a greater negative impact on a computer game than a slow video card. The purpose of this survey, then, is to identify video cards that will work well with today's DOS games, and steer you away from those that may offer less than stellar performance. Let's take a look at these cards by chipset.

S3-BASE CARDS

S3 Corporation specializes in graphic accelerator chipsets for the PC industry. Their chips appear on many of the commonly available video cards. (See sidebar: *It's in the Chips*).

Number Nine Computer Corp.

GXE Level 12

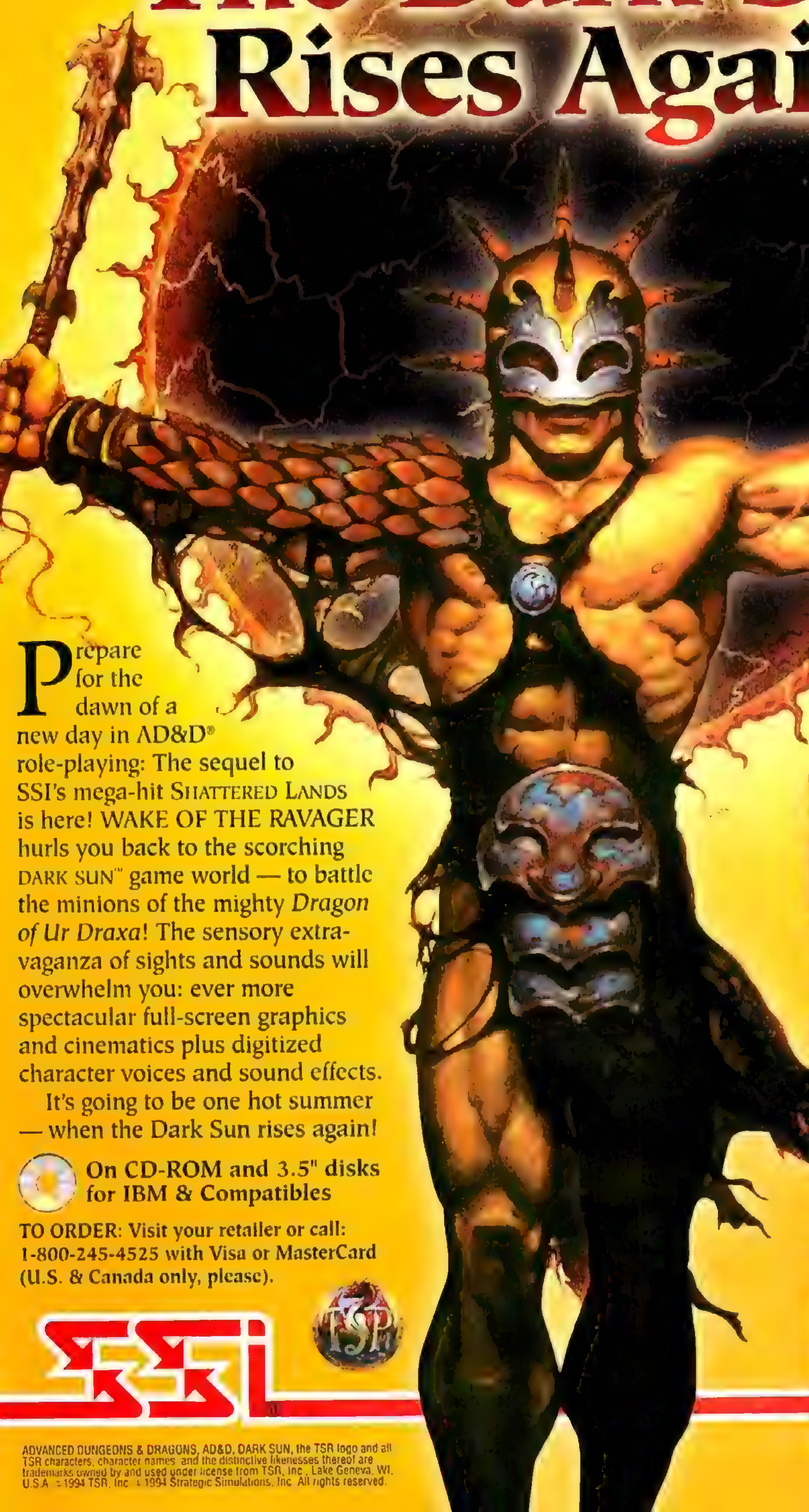
This VESA Local Bus card is based on the previous top-performer in the S3 line, the 86C928. It has a couple of nice features: a diagnostic LED that comes on if the card fails its self-test, and 1 MB of DRAM, which can be used by software applications as a cache for data. However, it is older technology and has been eclipsed in recent months. Number Nine has a good reputation for drivers and utility software, and this is reflected by the Hawkeye program that is used to manage the card's features under Windows. Installation of the card and its software went smoothly. DOS performance is still pretty good, but again, it's starting to show signs of age.

Diamond Multimedia Systems, Inc.

Stealth 24 ISA

Diamond Multimedia Systems makes a wide variety of cards for almost every budget category. The Stealth 24 ISA is their lowest-cost, S3-based card. For an ISA card, its performance is fairly good, but the S3 86C801 chipset was one of S3's early designs, and definitely shows signs of age. Still, S3's chips are gaining increasing support among game companies. If you have an older system with only ISA slots, and you are on a limited budget, this card is worth considering if you're interested in the few supported games (i.e. the flight sims from Domark).

The Dark Sun Rises Again!



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Diamond Multimedia Systems, Inc.

Stealth Pro/Stealth Pro ISA

These cards are based on the S3 86C928. The DOS performance of the VLB version is on a par with the other 928 card in the roundup, the Number Nine GXE. Windows performance was a little better, though, indicating Diamond does a better job of writing Windows drivers. These cards were a little more finicky to install (particularly the Windows drivers), but once installation was out of the way, they ran quite well. For some reason, these cards still have a relatively high street price, and there are better performers out there for the money.

Genoa Systems, Inc.

Phantom 64

This card is based on the S3 Vision864 chip. S3 has been shipping two 64-bit graphics accelerators, the 864 and the 964. The 864 uses DRAMs and supports up to 2 MBs. The card was very easy to install and get running. DOS benchmarks were on par with other 864-based cards, and Windows benchmarks were similar to all other 864 cards except the Diamond Stealth 64 DRAM. This was one of the few cards to come with an uninstall utility—handy if you're a reviewer, and very handy if you ever need to change video cards. Upgrading Windows drivers, in particular, can be a nightmare with some cards, but not the Phantom 64.

Number Nine Computer Corp.

GXE64

The GXE64 is another S3 Vision 864-based card, one of the first that actually shipped. Because of this, the card has stable drivers and hardware (it's certainly more stable than its big brother, the GXE64 Pro). DOS benchmarks were nearly identical with other 864 cards. Windows benchmarks were on a par with other 864 cards, except for the Diamond Stealth 64 DRAM. The Hawkeye setup program contains an integrated set of utilities to manage card features, and is very solid. Although the card performed well, it seemed a little pricey compared to its competition.

It's In The Chips

They Come In Many Flavors. Which Have The Crunch?

In the beginning, there was VGA. (Well, there was CGA and EGA, but most modern games write to the VGA standard.) VGA, originally developed by IBM, stands for *Video Graphics Array*. There is some confusion about VGA, but the bottom line is this: for game purposes, standard VGA, as defined by the original VGA adapter, is either 640x480 with 16 colors or 320x200 with 256 colors. There are other graphics modes that a standard VGA adapter can support, but they require additional programming effort to work.

VGA is a very simple solution. Basically, it's a *dumb frame buffer*, which means that the main processor, such as a 486, needs to handle all of the actual computations to put the graphics on the screen; the VGA card just acts as a translator between the computer and the display screen. In the past several years, a number of companies have developed cards with higher resolutions and capabilities. These have been lumped into a category called *SuperVGA*, which allows more colors and higher resolutions to be displayed. Early on, every card vendor handled SuperVGA functions differently. This caused tremendous confusion among potential customers, so the card makers created an industry association called the *Video Electronics Standard Association*, VESA for short. VESA's first job was to define a standard way to handle graphics beyond standard VGA. The result was the VESA graphics standard, which has been widely adopted by software vendors and video card manufacturers alike. More and more VESA-compliant games are starting to hit the shelves.

There are few vendors of video cards these days that completely control the design of their cards. The reason for this is that there are a number of companies who design and market *graphics chipsets*. These chipsets contain all the circuitry necessary to perform graphics functions. Most chipsets these days have built-in *accelerators*. A graphics accelerator performs certain functions, such as moving a bitmap around a screen, very well, relieving the main processor of the duty. This allows the processor to run more efficiently, and yields better performance.

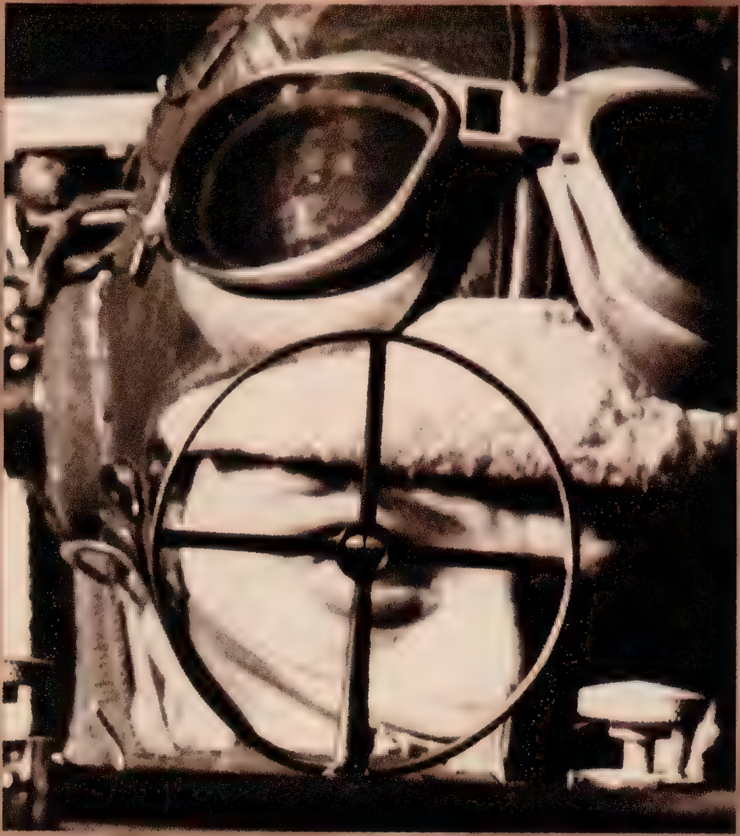
The tradeoff is that applications software, such as games, need to be written to take advantage of these acceleration features. Otherwise, the accelerator becomes no more than a standard VGA card, although most can handle VESA-compliant SuperVGA resolutions as well, without any performance enhancement. The majority of these chipsets have been targeted for the Windows market. Windows is such a graphics-intensive environment that huge gains in performance can be realized by using graphics accelerators. Most of the companies which have developed accelerated SuperVGA chipsets have also embedded normal VGA functionality in their chips. However, VGA performance is not always the same from one chipset to another.

There are a few, very few, games these days that actually take advantage of these accelerators. Part of the problem is that the accelerators have been tuned more toward speeding up a graphical user interface rather than game action. Still, some impressive results can be seen. Domark's Flight Sim Toolkit and related products can use the functionality of S3 graphics chips to run a flight simulator at 1024x768x256 with almost no performance degradation.

There are a few vendors, such as ATI and Matrox, that design their own chipsets, but most vendors use standard, off-the-shelf components from companies like S3, Cirrus Logic and Tseng Labs. Hence, our product descriptions have been sorted by chipsets.

However, that's not to say that the design of the card itself is any less important. Early cards that used the first S3 chips got a deservedly bad reputation for game performance. It was the card design that affected VGA performance, not the chips. Keep this in mind as you read the reviews.

GREAT MEN MAKE HISTORY
BUT ONLY YOU CAN CHANGE IT.



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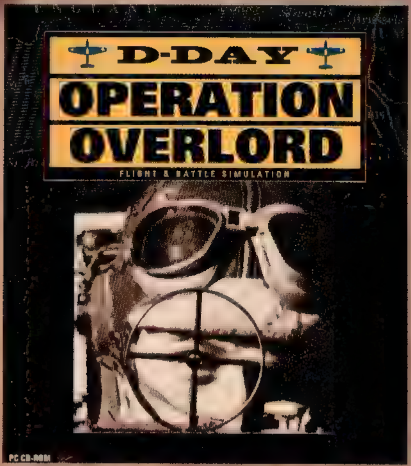

- CHOOSE FROM THREE OF THE MOST POWERFUL SINGLE SEAT FIGHTERS EVER BUILT: THE SPITFIRE, THE MUSTANG OR THE TYPHOON. ALL COCKPITS ARE HISTORICALLY ACCURATE DOWN TO THE LAST FUEL GAUGE.
- [illegible] AGAINST THE ENEMY'S BEST FLYING [illegible] SUCH AS THE FOCKE-WULF 190, THE [illegible] AND THE DREADED MESSERSCHMITT 109.
- NO TWO MISSIONS ARE IDENTICAL.

Virgin

AVAILABLE ON PC CD-ROM

[illegible]

Circle Reader Service #[illegible]

Diamond Multimedia Systems, Inc.

Stealth 64 DRAM

This is another 864 card, with DOS performance nearly identical to other 864-based cards. The VL-Bus version had problems running Microsoft Flight Simulator 5.0 in SVGA mode (the screen was garbled), but the PCI version performed correctly. (Other S3-specific and VESA SVGA games ran without a hitch.) The Windows benchmarks were considerably better than other S3 864 cards, a tribute to Diamond's drivers. This card is one of the best price/performance video cards available, but if you're looking at the VESA local bus version, double check any potential compatibility problems.

Number Nine Computer Corp.

GXE64 Pro

The GXE64 Pro is the high end of the Number Nine GXE family. It's based on the S3 Vision 964 chip, which uses VRAM (*Video* RAM, special memory tuned for graphics). Unfortunately, it has a few rough spots. Compatibility with Microsoft Flight Simulator 5.0 is questionable. The test card could not run FS5.0 in SVGA mode, either using the S3 driver or the VESA driver. A quick check of the on-line services revealed similar problems with FS5.0; however, some users could run it if they reset the refresh rate. It's possible that Number Nine has revised the BIOS on the card, which could account for the differences. The Windows drivers had problems, too. Although they were stable, a number of advertised features were not delivered, even after several driver revisions. We suggest taking a "wait-and-see" stance on this card. DOS benchmarks (except for FS 5.0) were solid, although the Windows benchmarks were quite a bit slower than the other 964 card, the Stealth 64.

Diamond Multimedia Systems, Inc.

Stealth 64

This was one of the the hottest cards overall. It had very solid DOS benchmarks. The synthetic benchmarks, such as 3DBench and PCBench weren't the fastest, but they were close. The Windows benchmarks nearly matched the Graphics Winmark of the Matrox cards, which are tuned for Windows. If you have the money, this is the card to have right now.

TSENG LABS ET4000 FAMILY

Orchid Technology, Inc.

Prodesigner IIs

This card is no longer sold by Orchid, but is included as a reference card. A scant 2-3 years ago, cards based on the Tseng Labs ET4000AX chipset were the fastest VGA cards around. These were terrific cards for the games of that era, but in these days of 18-month product life cycles, video cards have come a very

Get On The Localbus

What Is A Bus And Where Will It Take You?

One of the most useful new technologies to come out for gaming in the past several years is the local bus. The concept behind the local bus is simple: create a method for plugging in cards (particularly video cards) that will run at the same speed as the CPU bus. Let's take a look at the whole idea of a "bus" before we go further.

A bus, in computer jargon, is simply an electrical conduit for data. Most IBM compatible PCs these days have one bus type in common: the ISA bus. ISA stands for *Industry Standard Architecture*, and refers to the original 16-bit data path that first appeared in the IBM PC-AT. Immediately, we see one important concept of data buses: the *width*. The width of the bus refers to how many bits of information can travel across the bus simultaneously. The ISA bus can handle 16 bits of data at one time.

Another important concept of data buses is the *speed*. Oddly enough, this is usually measured by the *clock rate* of the bus. Every bus needs a *clock signal*. The clock signal essentially sets the speed limit for the bus, and is usually measured in millions of cycles per second (*megahertz.)* The standard ISA bus clocks at eight megahertz. This translates to a theoretical maximum throughput of 16 megabytes per second, but in reality, the true throughput is much lower.

Several years later, a number of PC vendors banded together and developed the EISA bus (EISA stands for *Extended Industry Standard Architecture*.) It added some nice features, plus doubled the width of the bus to 32 bits. However, the bus was still clocked at eight megahertz, making for a theoretical maximum throughput of 32 megabytes per second. Again, this was a theoretical maximum; however, EISA was a better crafted standard, so actual throughput was closer to theory than in an ISA bus.

For a variety of reasons, EISA never caught on, except in file servers where a number of EISA disk controllers and LAN adapters were useful. So the hardware wizards in the PC industry came up with the next idea: the local bus. In the real world, a local transit bus usually designates a slow-moving bus route with lots of stops, but the meaning in the computer world is completely opposite. The first local bus to hit the streets was developed by the Video Electronics Standards Association (VESA), and was appropriately called the VL-Bus.

At the same time, a consortium of companies headed by Intel developed the *Peripheral Component Interconnect* (PCI) bus. PCI has several inherent advantages over VL-Bus:

- Processor independence. The VL-Bus is closely tied to the physical characteristics of the 486 chip; PCI is designed to work with any CPU.
- Speed independence. The PCI bus has the ability to "buffer" data. This means that the speed of the CPU (for example, a 66 MHz Pentium) can work well with the 33 MHz speed of the PCI bus.
- The PCI bus has the ability to move traffic along the bus without the processor having to wait. Every time a VL-Bus transaction occurs, the CPU waits until the bus is finished.

If you're confused by all of this, the bottom line is simple: if you're buying a new 486 system, VL-Bus is probably the most cost-effective option in boosting your graphics performance for most games. However, if you're making the leap to Pentium, we suggest you go with PCI bus—the performance gains are greater, and the growth path is probably more robust.

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Features And Benchmarks

Manufacturer	Card	Bus Type	Memory (in bytes)	Chipset	3DBench	Vidspeed 320x200	Cygspeed (frames/sec)	PCBench 8.0 Video	WinBench 4.0 640x480x256	WinBench 4.0 640x480x64K
ISA, VLB BASED CARDS (TESTED ON 486 SYSTEM)										
ATI	Graphics Pro Turbo	VLB	2M VRAM	Mach 64	47.60	6030/2347	31.6	3642	21.9 ●	21.2 ●
ATI	Graphics Wonder	VLB	1M DRAM	Mach 32	47.60	7281/2631	32.7	3197	9.9	6.62
ATI	Graphics Xpression	VLB	2M DRAM	Mach 64	47.60	7347/2840	33.7	4087	21.2	19.4
DIAMOND	Speedstar 64	ISA	2M DRAM	GD5434	38.40	2803/1599	NA (1)	2328	7.83	6.45
DIAMOND	Speedstar Pro	ISA	2M DRAM	GD5426	38.40	2803/1499	23.4	2374	7.72	6.04
DIAMOND	Speedstar Pro	VLB	2M DRAM	GD5428	47.60	7641/2732	33.7	4495	9.26	6.02
DIAMOND	Stealth 24	ISA	1M DRAM	S3 86C801	38.40	2803/1309	21.6	2130	8.34	7.19
DIAMOND	Stealth 64	VLB	4M VRAM	S3 964	50.00 ●	9887/2052	27.3	4807	20.6	20.5
DIAMOND	Stealth 64 DRAM	VLB	2M DRAM	S3 864	50.00 ●	10304/2035 ●	27.5	5059	20.4	19.4
DIAMOND	Stealth Pro	VLB	2M VRAM	S3 928	50.00 ●	9972/2035	28.4	4417	12.8	11.9
DIAMOND	Stealth Pro	ISA	2M VRAM	S3 928	38.40	2803/1083	20.9	2123	9.51	8.95
DIAMOND	Viper SE	VLB	2M VRAM	Weitek P9100	32.20	1830/1214	18.8	1527	19.3	18.4
GENOA	Hornet	VLB	1M DRAM	NCR 77C328L	50.00 ●	8475/5309	29.5	5554	14.6	11.8
HERCULES	Dynamite Pro	ISA	2M DRAM	ET4000/w32i	38.40	2372/1798	18.2	2217	11.4	10.4
HERCULES	Dynamite Pro	VLB	2M DRAM	ET4000/W32p	50.00 ●	9603/4042	36.7	5730 ●	12.9	11.9
HERCULES	Graphite Power	VLB	2M VRAM	AGX016	40.00	3052/3696	27.1	2298	13.7	7.46
MATROX	MGA Ultima/2	VLB	2M VRAM	MGA	13.60	864/754	13.7	563	19.6	15.3
MEDIA VISION	Prographics 1024	VLB	2.25M VRAM	MMV443 (3)	34.40	3055/1428	21.1	1764	17.9	NA (3)
NUMBER NINE	#9 GXE level 12	VLB	2M VRAM, 1M DRAM	S3 928	50.00	9531 / 1709	28.4	4410	10.6	10.3
ORCHID	Kelvin 64	ISA	2M DRAM	GD5434	34.40	2055/1431	NA (1)	1827	7.55	6.48
ORCHID	Kelvin 64	VLB	2M DRAM	GD5434	47.60	6992/2499	NA (1)	3773	13.7	9.23
ORCHID	Prodesigner IIs	ISA	1M DRAM	ET4000AX	34.40	2055/1505	17	1829	2.19	NA (3)
STB	Lightspeed	VLB	2M DRAM	ET4000/W32p	50.00 ●	8899/4286	37.1 ●	5676	17.6	14.8
PCI BASED CARDS (TESTED ON PENTIUM SYSTEM)										
DIAMOND	Stealth 32	PCI	2M DRAM	ET4000/W32P	71.40	5474 / 2770	45.5	4858	29.9	15.6
DIAMOND	Stealth 64	PCI	4M VRAM	S3 964	83.30	18767/1621	33.3 ●	6958	40 ●	35.3 ●
DIAMOND	Stealth 64 DRAM	PCI	2M DRAM	S3 864	90.90 ●	19883/1614	33	7914	39.3	32.2
GENOA	Phantom 64	PCI	2M DRAM	S3 864	90.90 ●	19883/1614	32.7	8023	30.3	29.2
MATROX	Impression+	PCI	2M VRAM	MGA	15.10	834/786	15	568	38.4	26.4
MATROX	MGA Ultima/2	PCI	2M VRAM	MGA	14.90	580/789	15	563	32.4	N/A (32k only)
NUMBER NINE	#9 GXE64 Pro	PCI	2M VRAM	S3 964	83.30	17712/1585	32.5	6934	29.2	26.2
NUMBER NINE	#9 GXE64	PCI	2M DRAM	S3 864	90.90 ●	19883/1619 ●	32.7	8045 ●	29.7	22.7

(1) All Cirrus Logic 64-bit controllers NA Cygspeed.
(2) FS5.0a in SuperVGA mode was NA when using Hercules-supplied VESA driver.
(3) These cards couldn't run 65,000 colors.
(4) The Stealth 64 DRAM VLB (which appears to be a prerelease board) could not run SVGA with FS5.0a, either in S3 mode or VESA. The S3 mode was completely NA. The VESA mode was painfully slow and the screen had artifacts that would appear.
● indicate the highest benchmark performances in a class.

The Test Systems

System 1: "Typical"
Micronics-based 66 MHz 486 DX2, 256 KB of secondary cache
8 EISA slots (3 of which are also VL-Bus slots)
16 megabytes of RAM
Adaptec 2742A EISA SCSI host adaptor
Micropolis 2210 1 gigabyte hard disk
Hewlett-Packard ERGO Ultra SVGA display (15")

System 2: "High end"
Intel-manufactured Pentium 90 MHz system, 256 KB of secondary cache
5 ISA slots, 3 PCI slots
24 megabytes of RAM
Adaptec 2940A PCI SCSI host adaptor
Quantum PD1225S 1.2 GB hard disk
Connor CP31370 1.3 GB hard disk
Viewsonic 7 17" SVGA monitor

Notes:

The 486/66 DX2 systems are rapidly becoming the mainstream system of choice. While the disk drives on our testbed seem a little extreme, even that's becoming less of an oddity, as 500 plus megabyte IDE drives drop down to the fifty cents per megabyte price range.

The current high end is the 90 MHz Pentium systems; while there are a few 100 MHz systems available, they are expensive and rare. By this time next year, of course,

FS5.0a VGA Sparse	FS5.0a SVGA Sparse	Documentation	Price
34.5/34.5 ●	23.5/34.5	GOOD	$449
34.5/34.5 ●	23/34.5	GOOD	$199
34.5/34.5 ●	26.0/37.0	GOOD	$249
24/34.5	18/24.0	GOOD	$235
23.34.5	20.0/20.0	GOOD	$169
24.5/34.5	29.5/29.5 ●	GOOD	$179
23.0/34.5	20.0/20.0	GOOD	$249
34.5	23.5/36.5	GOOD	$399
34.5/34.5 ●	NA (4)	GOOD	$299
34.5/34.5 ●	29.5/29.5 ●	GOOD	$449
23.0/34.5	19.5/19.5	GOOD	$449
23.0/34.5	14.5/19.5	GOOD	$429
34.5/34.5 ●	15.5/22.0	POOR	$159
23.0/34.5	17.0/23.0	EXCELLENT	$269
34.5/34.5 ●	23.0/34.5	EXCELLENT	$269
23.0/34.5	NA (2)	EXCELLENT	$419
17.5/23.0	5.5/5.5	EXCELLENT	$549
23/34.5	12.0/15	FAIR	$449
34.5/34.5 ●	22.0/22.0	EXCELLENT	$595
23.0/34.5	16.5/18.5	FAIR	$325
34.5/34.5 ●	24.5/37.0	FAIR	$325
23.0/34.5	17.0/23.0	GOOD	$249
34.5/34.5 ●	23.0/34.5	GOOD	$229
43.5/69.5	34.5/34.5	GOOD	$269
47-61/69.0	35.5/71	GOOD	$399
63.0/69.0	36.0/36.0	GOOD	$299
68.0/69.0 ●	37.0/37.0 ●	POOR	$279
34.5/34.5	5.5/6.0	EXCELLENT	$449
23.0/23.0	6.0/6.0	EXCELLENT	$499
61/69.0	NA	EXCELLENT	$499
63.0/69.5	29.5/59.5	EXCELLENT	$349

the power curve will have shifted once again. By then, there will be games shipping that will require Pentium peformance to run them with all the features turned on.

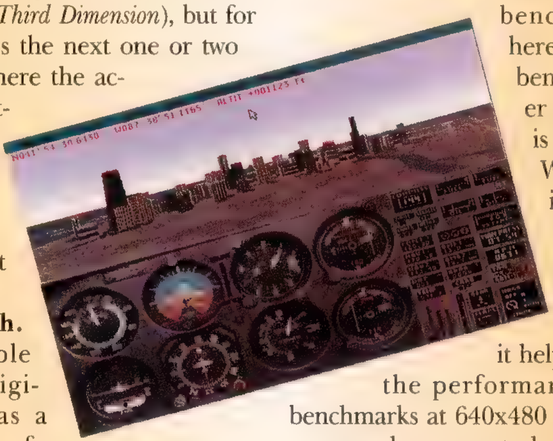
All Windows benchmarks were run on "vanilla" Windows 3.1 installations. The memory manager used for all benchmarks was DOS 6.2's HIMEM.SYS / EMM386.SYS combination. The appropriate high memory areas were excluded per the card manufacturer's recommendations.

Lies, Damned Lies And Benchmarks

When general purpose computer magazines examine video cards, they tend to focus on performance issues appropriate to everyday business applications. These days, this means a particular emphasis on performance under Microsoft Windows. Some magazines are even discounting the importance of DOS performance. Obviously, the reviewers never tried to run STRIKE COMMANDER.

Clearly, today, good DOS graphics performance will result in good performance in the majority of games. That may very well change in the future (see sidebar: *Into the Third Dimension*), but for now and perhaps the next one or two years, DOS is where the action is in computer games.

With that in mind, let's take a look at the benchmarks that were chosen:



- **3DBench.** This venerable benchmark, originally written as a demonstration of a virtual reality toolkit from Superscape, has been long used by flight sim buffs. It's not without its flaws; for example, it will happily report the number of frames it *generates* internally, not the number of frames that actually get *displayed*. The actual number of frames per second a game can actually display can't exceed the refresh rate (i.e., the number of times per second a picture is actually painted on the screen by your video monitor).
- **Vidspeed.** Vidspeed is simply a raw measure of how fast pixels get blasted through the video card. We chose to use 320x200 pixels at 256 displayed colors for this particular number, since most DOS games today run at this resolution. The two Vidspeed numbers relate how fast pixels are written to and read from card memory in bytes per millisecond.
- **Cygspeed.** Cygspeed is another frame rate benchmark, probably more accurate than 3D Bench, but somewhat more finicky about the hardware it runs on. None of the cards based on the Cirrus Logic 64-bit graphics chipset would work with Cygspeed; the screen would be completely garbled.
- **PC Bench 8.0 Video Harmonic.** This is the DOS video benchmark from Ziff Labs. It's basically a measure of throughput in the video system, but doesn't look at frames per second or other more game-oriented features.
- **Winbench 4.0 Graphics Winmark.** What's a Windows benchmark doing here, you ask? This benchmark, another from Ziff Labs, is the standard for Windows graphics benchmarking. There are Windows games out there, and so it helps to know what the performance is. We ran benchmarks at 640x480 by 256 colors, a commonly supported resolution, and 640x480 at 65,000 colors, the resolution defined by the Multimedia Products Council (MPC) as the minimum graphics for MPC Level 2 software.
- **Microsoft Flight Simulator Benchmarks.** This series of benchmarks was developed by Steve Wiggington of CompuServe's Flight Simulator Forum. It is a canned demo of FLIGHT SIMULATOR 5.0, and is hence repeatable. It makes use of a special FS5 driver, FC.FSO, which converts the normal transponder display on the control panel to a framerate number. The benchmark is run four times, at varying resolutions and scenery density (we list the results of two tests).

We feel that these benchmarks, in combination, give a reasonably accurate picture of DOS and Windows game performance on our tested video cards.

long way. It's interesting to compare this card with today's products. As expected, Windows benchmarks are abysmally slow. There's no 65,536 color mode supported, so this would not be an MPC level 2 compliant video card. Compared to some of the other ISA cards, its DOS performance is not too bad, and is even on a par with a couple of local bus cards.

Hercules Computer Technology

Dynamite Pro

The Tseng ET4000/w32 family of graphics accelerator chips came out a little over a year ago, and Hercules was one of the first companies to offer cards based on the w32i. Since then, they've steadily moved forward with the w32 family as more capable chips (and supporting hardware) have come out. Unfortunately, we didn't get a chance to test the latest Dynamite Power cards, but only the Windows benchmarks would have been different, and the Power cards cost more. The current Dynamite Pro local bus version is based on the w32p chipset, while the ISA card uses the w32i. All of the w32 chips use a technique called *memory interleaving*, which yields solid Windows performance with cards equipped with 2 MB of DRAM. Memory interleaving is not a factor in DOS performance, but the cards did show stellar DOS performance, demonstrating the highest numbers in the synthetic benchmarks. These numbers didn't always translate as well to SVGA games such as Flight Sim Toolkit and Flight Simulator 5.0, but that is in part due to the lack of specialized drivers. These cards are a solid choice in their price range.

STB Systems, Inc.

Lightspeed VL

This card is a little more expensive than other cards based on the ET4000/w32 chipset, but you get better performance, at least in Windows. DOS performance was comparable to other cards in this category, but the Windows benchmarks were nearly 50% better. The card itself is cleanly laid out, with a low chip count. STB had some teething problems with early versions of this card, but these have been resolved and the current generation seems very solid. The list price of this card makes it a very cost effective gaming solution.

Diamond Multimedia Systems, Inc.

Diamond Stealth 32

The Diamond Stealth 32 was the lone PCI card based on the ET4000/w32 family. It ran most DOS benchmarks pretty quickly, though not as quickly as some of the other PCI cards. However, it did have the single highest Cygspeed score, a stellar 45.5 frames per second. Windows benchmarks were reasonably high. A solid price/performance candidate.

ATI MACH FAMILY

The ATI cards represented here are either based on the ATI Mach32 or Mach64 video cards. While there are one or two other vendors who use the ATI chipset, the vast majority of ATI-based cards are from ATI itself.

ATI Technologies

Graphics Pro Turbo

This card demonstrated solid, if not spectacular, DOS and Windows performance. It's a bit on the pricey side, but does include features such as the ability to accelerate digital video files. The software that ships with the card has some great features, such as on-the-fly resolution switching in Windows. Also, setup information is permanently stored on the card when you run the install program, unlike many cards that create a file on your hard disk. ATI is one of two vendors that specifically ships drivers for accelerating digital video (.AVI) files under Windows. ATI's Windows drivers seem a little more solid than earlier versions.

ATI Technologies

Graphics Xpression

The Graphics Xpression demonstrated somewhat better performance in DOS than the Graphics Pro Turbo, but Windows performance was poorer than its elder sibling. Like the Graphics Pro Turbo, this card can store setup information on the card itself. Additionally, it comes with drivers to accelerate digital video files and the same productivity software as the GPT. This is a very cost effective card if you need the additional features of the GPT and don't require the 4MB option. Also available in an ISA version.

ATI Technologies

ATI Graphics Wonder

The ATI Graphics Wonder is based on one of ATI's earlier accelerators, the Mach32 chip. The Wonder is a middle-of-the-road performer, delivering good DOS performance and mediocre Windows performance. Like all ATI accelerators, you can download the setup to the card, which alleviates the need for configuration files. However, unless you specifically need 8514 compatibility (the 8514 is an older high resolution video standard), the Graphics Xpression is a much better price/performer in the ATI line.

CIRRUS LOGIC CHIPSETS

Cirrus Logic manufactures a number of low-cost VGA chipsets. Cirrus Logic hardware turns up in many laptops, and often clone vendors will use cards with these chips in their low-cost systems.

Diamond Multimedia Systems, Inc.

Speedstar Pro

The Speedstar Pro is a very low-cost card delivering solid DOS performance and poor Windows performance, all at one of the lowest price points around. Although these cards are made by Diamond, numerous Taiwanese SuperVGA cards use Cirrus Logic chips, and the performance is similar. Recommended only for gamers on a very tight budget.

Orchid Technology, Inc.

Kelvin 64

The Kelvin 64, and other cards based on the Cirrus Logic 64-bit chip, were major disappointments. If these cards had been around a year ago, they would have been considered high performance, but compared against other 64-bit chipsets, their overall performance is lackluster. Note, however, that the DOS benchmarks are quite good. The text display for the Cygspeed benchmark was garbled beyond recognition, preventing us from capturing that data. Windows performance was nowhere near other 64-bit video cards, and was even poorer than the Tseng ET4000/W32 family. One nice feature of the Orchid cards is that the resolution management program is actually a Windows Control Panel application, which makes it easy to find. These cards are generally low

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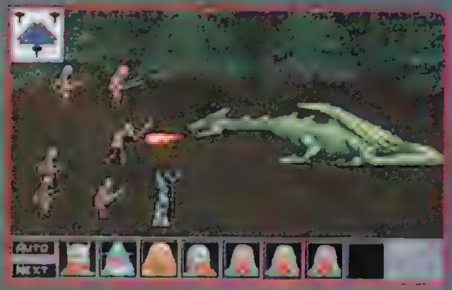

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cost, but with some of the other cards, such as the Stealth 64 DRAM and Number Nine GXE64 approaching a $200 street price, these cards do not offer great value. One note: we never could get the PCI version to run Windows on our Intel testbed.

Diamond Multimedia Systems, Inc.

Speedstar 64

The Speedstar 64 is another low-priced 64-bit card based on the GD 5434 chip. We tested the ISA version. Despite it being advertised as a 64-bit card, the performance was nearly identical with the ISA version of the Speedstar Pro, which is based on the 32-bit GD5426 chipset. Since other cards are faster, and the Speedstar Pro is cheaper, we're not sure why anyone would buy this card.

MATROX MGA SERIES

Matrox was the first vendor to ship 64-bit video cards, the MGA series, over a year before other chip vendors. Matrox sells the MGA as a card through the retail channel or chips to systems vendors such as Hewlett-Packard and Compaq.

Matrox Electronic Systems

MGA Ultima/2

The Ultima/2, until recently, was Matrox's low-cost, entry level card. It offers abysmal DOS performance, very respectable Windows performance and, if you need it, it's one of the best 24-bit cards around. However, it does not run DOS applications well, and is a poor choice for DOS-based games. Additionally, the Ultima/2 does not have a 65,000 color mode, which is essential for running future MPC level 2 software. If you stay mostly in Windows, there are some neat productivity features, such as on-the-fly resolution switching and a proprietary dithering algorithm that enables 24-bit images to display with very high visual fidelity when the card is in 256-color mode. However, we can't recommend this card for DOS games.

Matrox Electronic Systems

MGA Impression Plus

This is a very interesting card, because it has hardware acceleration for 3D functions such as Gouraud shading, lightsourcing and hidden surface removal. However,

Into The Third Dimension

The Future Of Video Cards

In the past 24 months, graphics accelerators have become the mainstay of video cards. In fact, it's difficult to find a vanilla VGA card any more; even the lowliest ISA card seems to have some kind of accelerator chip on it. However, this acceleration has been mostly focused on making Windows run more efficiently. The net result has been faster 2D, bitmapped graphics.

Increasingly, however, games are moving into the third dimension. Flight sims have always been 3D games, but now we're seeing 3D emerge in role-playing games such as Arena and Ultima VIII. Thus far, 3D graphics have been limited to relatively simple polygons. Occasionally, graphical textures have been applied to polygon objects to make them more real (called *texture mapping*) and techniques for blending one color into another (*shading*) have been added. Shading smooths out the lines between polygons, making an angular shape look more rounded.

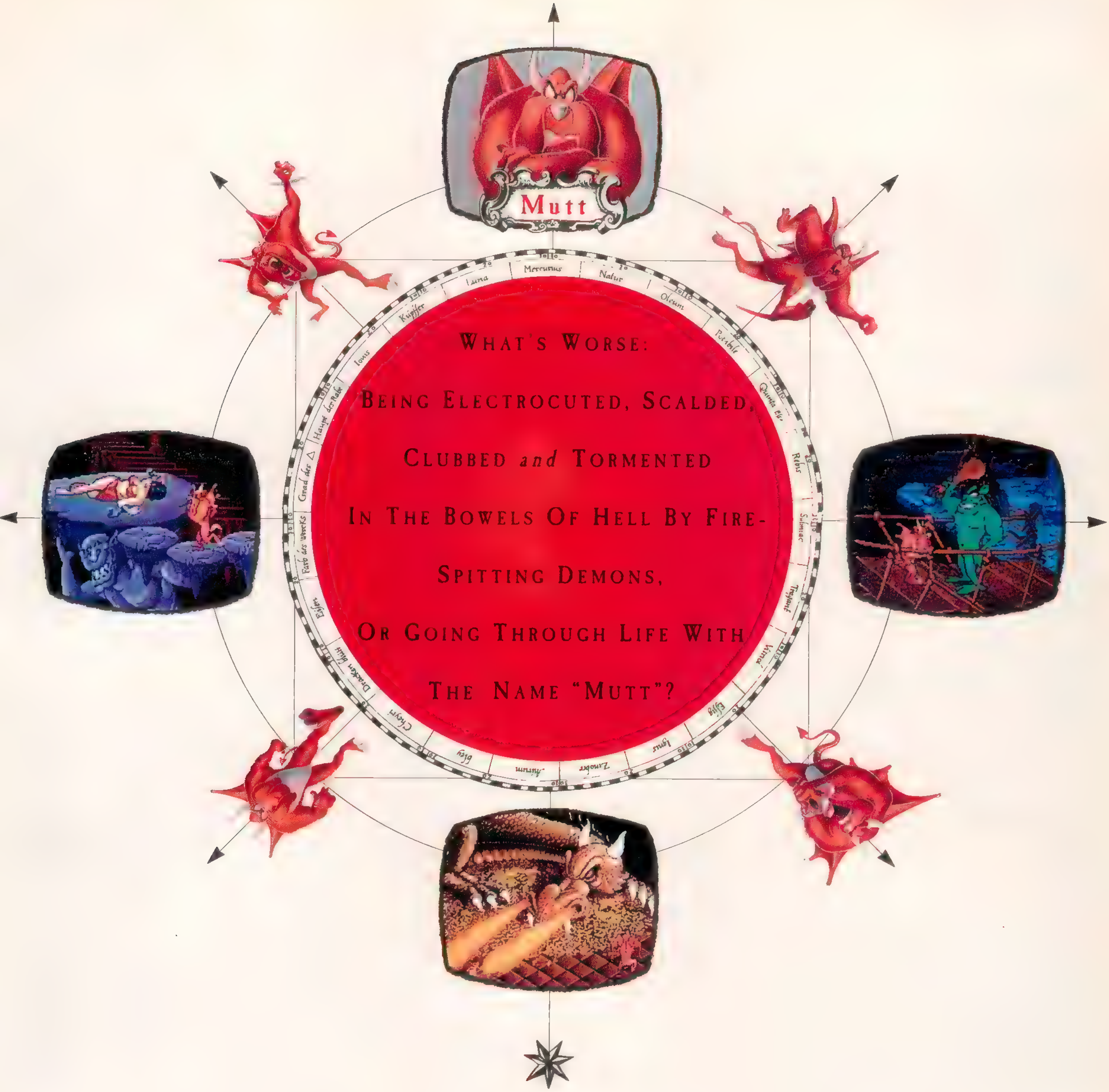
Most video cards aren't built to handle these kinds of graphics, so the CPU ends up handling them. Adding light sourcing (i.e., the sun) adds another element of complexity. And 3D graphics are CPU intensive. That's why a 66 MHz 486 DX2 local bus system will choke on a game like Pacific Strike.

So the video card manufacturers are turning their attention to 3D graphics. One of the first vendors on the block with a low-cost, 3D accelerator is Matrox with its Impression Plus. The Impression Plus sports poor DOS VGA performance, so it isn't really suitable for most of today's games. However, Matrox will be shipping a CD-ROM to all registered users, and on that CD are some games that really show off the technology.

One game that ships on the Matrox CD is by a new company, 47-tek. It's called Sento, and is a fighting game in the same vein as Street Fighter, but it takes the genre into a new dimension (pun intended). The characters in Sento are all Gouraud-shaded polygons, as many as 1,000 polygons, all smoothly blended and light-sourced. A typical fight move may have as many as 250 or more frames of animation, and the animation is being calculated in real time, as the game is played, not stored on a disk or in memory. If you move a certain way, the camera angle can shift, showing off the true 3D perspective. The moves are smooth and fluid. Oh, and did I mention that it runs at 640x480 with 65,000 colors!

47-tek didn't write directly to the Matrox card, either, which leaves them open to adapting their games to other 3D platforms. They used a commercially available toolset by Criterion Software called Renderware. Renderware is well suited towards creating 3D environments and characters than can be manipulated in real time. However, don't expect good performance on a standard DOS VGA. Matrox certainly has their work cut out, convincing more mainstream developers to support their card, but tools like Renderware help. And certainly the price point for the Impression Plus, at $449 for the entry level version, is very attractive. Undoubtedly, Matrox's competitors, who have yet to ship their 3D cards, are wincing. Don't buy an Impression Plus to run any of today's DOS games, but it's worth keeping an eye on this board and seeing what level of support it receives from the industry.

Other graphics chipsets will be shipping shortly, and you can expect to see other 3D accelerators out within six months. Some of them will even have features well-suited for games, such as hardware assisted texture mapping. And some of them may have respectable DOS VGA performance as well.



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Optional Digital Video Cartridge required for CD-i Litil Divil™ © 1993 Gremlin Graphics Software Limited We apologize to anyone whose name actually is Mutt or, for that matter, any fire-spitting demons we may have offended. © 1994 Philips Media. All rights reserved.

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like other MGA cards, its DOS performance is at the bottom of the pack. If you're a multimedia developer, this would be a great choice, because it will accept future add-ons such as compressed video playback and VESA media channel. Matrox will be shipping a CD-ROM to registered users that contains several games specifically written to take advantage of the 3D acceleration (see sidebar: *Into the Third Dimension*). However, we cannot recommend this as a good buy for today's DOS-based games.

MISCELLANEOUS

These cards use chipsets that are either proprietary or uncommon.

Genoa Systems Corp.

Hornet VL

The Hornet VL was a real surprise. Based on the new NCR 77C32BLT accelerator chip, it sports a list price of $159. At that price, the Hornet's price/performance ratio is quite good. While not posting top marks in any single category, its performance is solid enough to warrant a serious look by anyone on a tight budget. It ships with a fairly minimal set of utilities, but what do you expect at this price?

Hercules Computer Technology

Graphite Power Series

Hercules positions the Graphite specifically for the 2-D image processing market (users of software like Photoshop and CorelDraw). Indeed, the card may be well suited for those users, but it's not a card for the serious gamer. Its DOS performance was relatively poor, and despite its price and positioning, the Windows benchmarks were average (the 16-bit color benchmark was among the lowest). On top of that, we couldn't get Microsoft Flight Simulator to run at SuperVGA resolution. Part of the problem is that the chip that drives this card is a clone of IBM's XGA graphics architecture, which has had problems with VESA graphics compliance in the past. Avoid this card, and take a look at the Hercules Dynamite series instead.

Diamond Multimedia Systems, Inc.

Viper SE

The Viper SE is targeted towards the high-end graphics professional who needs workstation-class Windows performance. As such, it posted Windows benchmarks near the top of the class for the VLB cards we tested. Its DOS performance was more problematic, however, posting relatively mediocre scores. The Viper SE is really ill-suited for the demands of today's DOS-based computer games.

Media Vision, Inc.

Prographics 1024

This interesting card is from Media Vision, a company better known for its sound cards. The card is meant to be a fast Windows true-color accelerator. Although it uses the Cirrus Logic VGA core for VGA graphics, its DOS performance wasn't up to par with true Cirrus Logic cards. Its Windows performance was better than the majority of the VLB cards, but wasn't a real standout. Also, it may have some compatibility problems. We were not able to get the card running in a Pentium VLB system that had the OPTI chipset. Although the Prographics 1024 manual showed a jumper setting specifically for OPTI-based motherboards, there was no corresponding jumper on the card! In our 486/66 testbed, though, the card ran without a hitch. Also, note that there's no 16-bit color mode, which can be a problem when MPC Level 2 software starts shipping. However, it does offer digital video acceleration capability, which is quite useful for Windows multimedia products. This card wouldn't be a good choice for DOS-based games.

THE RIGHT CARD FOR YOU

Which video card should you buy?

If everyone had an unlimited amount of money to spend, that would be an easy question to answer. Unfortunately, it's not that simple. Instead, we chose to break our answer down by budget requirements.

Barely Squeaking By: After wondering if a 40 MHz 386 would be good enough, you scraped up enough money to buy a 486, but have less than $150 left for a video card. Almost any of the cards based on the Cirrus Logic 5424 chipset would work well. These include the Diamond Speedstar Pro series and others. Another candidate is the Hornet VL from Genoa, but it's not available for the PCI bus.

Home Office System: You've bought a high-end 486 or maybe squeezed out the spare change to get a 60 MHz Pentium system. Video cards based on the Tseng ET4000/W32 chipset would be a fine complement to these systems. These cards range from $170 to $250 street price. The standout in this group is the STB Lightspeed VL. It's a match for the other cards in DOS performance, but it sports superior Windows performance.

The Serious Sim Pilot: You're still on a budget, but want to go as far as you can. Any card using the S3 Vision 864 chip would be just the ticket. These reasonably priced (under $250 street price) cards support 2 MB of DRAM, and sport terrific DOS performance and excellent Windows performance. However, avoid the VL-Bus version of the Stealth 64 DRAM because of its difficulties with FS5's SuperVGA mode. Good examples of these include the Genoa Phantom 64 and the Number Nine GXE 64. By the way, these cards also run other games *quite* well. If you're a little leery of leading-edge technology (some of these cards have had teething problems), then the ET4000/W32 cards are the ticket, but game companies who are writing drivers for accelerators have been ignoring this chip.

Unlimited Budget: It's hard to recommend a single card or chipset here. The S3 964-based cards support up to 4 MBs of VRAM, as does the ATI Graphics Pro Turbo. The most interesting card here is the Diamond Stealth 64, which blows the doors off of anyone in terms of non-true color Windows performance, and has exceptional DOS performance as well. On the other hand, ATI's card has built-in acceleration for digital video, which may be a consideration for people who use Windows multimedia products. In this range, the feature set and utilities become an important consideration; you don't get these cards simply to run games, so you may have to balance the needs of your other applications against your gaming desires.

A MOVING TARGET

Video card technology is moving even more rapidly than other personal computer technology. Performance and features that were once the purview of high-end engineering workstations are now commonplace on even modest PCs. Choosing the right graphics card for today's games is a tough enough challenge, but tomorrow's games may well use new software technologies that will render today's hardware obsolete. All we can do as game players is keep an eye on the future, but buy what plays well today.

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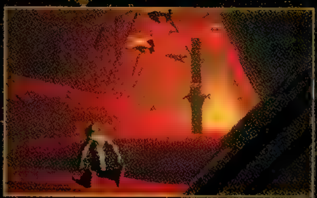

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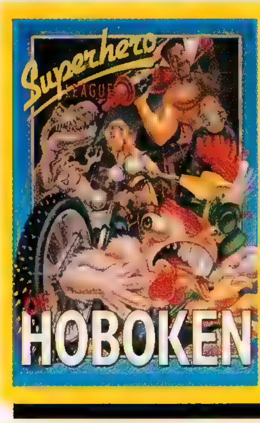

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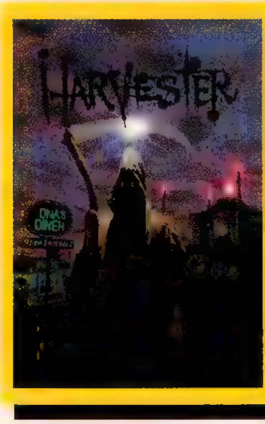

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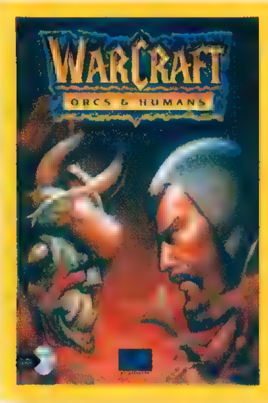

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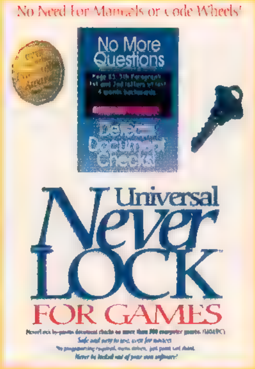
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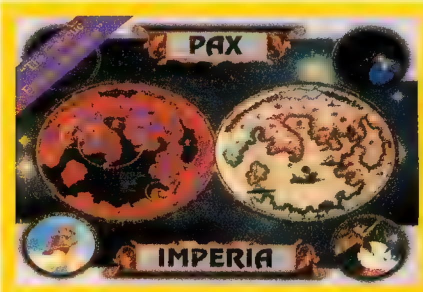

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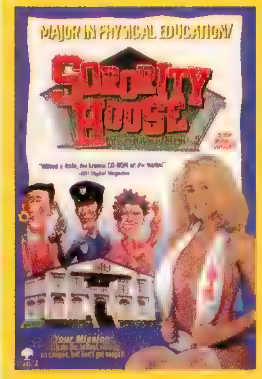

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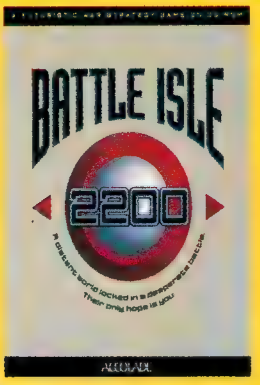
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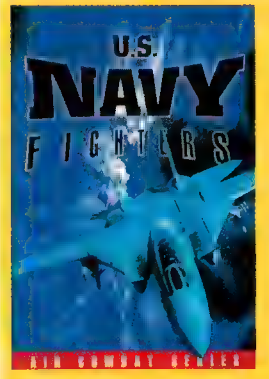

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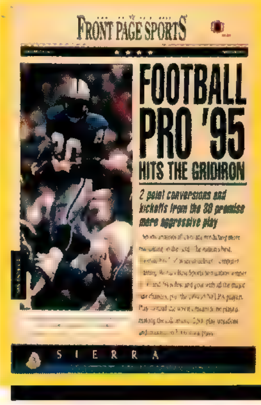
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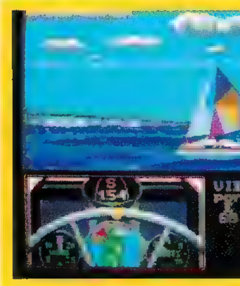

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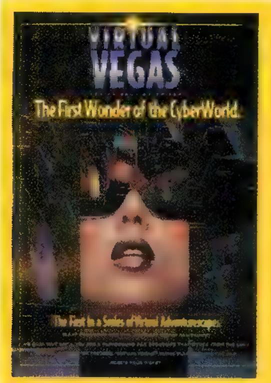

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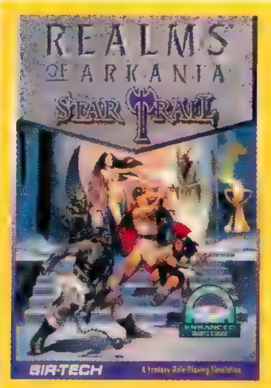

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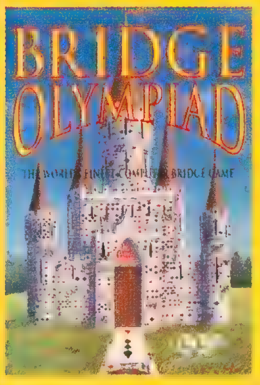
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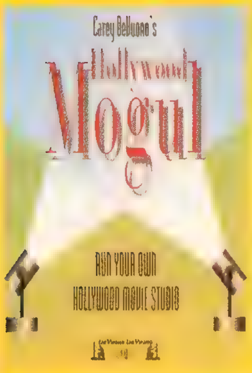

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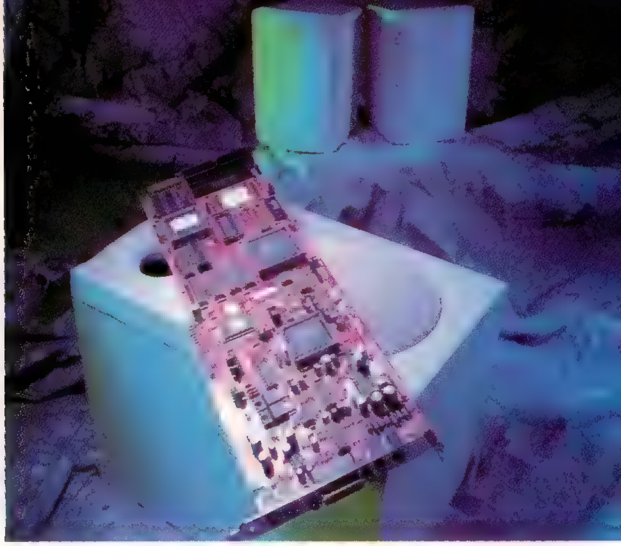
In Search Of The Ultimate... Sound Card



The Latest Sound Cards Offer A Ton Of Features. Which Are A Sonic Boon, And Which A Bust?

by Loyd Case

I still remember the first game I bought that supported sound other than the monotone beeps of the PC speaker. It was THEIR FINEST HOUR from LucasArts. Curious about the new technology, I bought a used AdLib card and started up the game. I surfaced three hours later, after being completely immersed, and vowed never again to buy a game that didn't support a sound card. It was such an epiphany. Before reasonably realistic sound was implemented, games had been an interesting diversion. After the experience with THEIR FINEST HOUR, games became a passion.

Sound hardware has come a long way since the original AdLib card. As recently as a year ago, the state of the art for most gamers was Creative Labs' SOUND BLASTER PRO or perhaps Media Vision's PRO AUDIO 16. A few hard-core gamers had Roland LAPC-1 or the newer SCC-1 wavetable synthesizer cards plugged into the inputs of their SOUND BLASTER, but it was a luxury most gamers couldn't afford.

Now, a new crop of sound cards will be changing that. These new cards are affordable, sound terrific, and bring a whole new level of realism to gaming. They incorporate both FM synthesized sound technology ("Sound Blaster" sound), in addition to the newer wavetable synthesis technology, which uses digitized samples of real instrument sounds to create its music. Most of these cards supply a significant amount of accessory software and many have built-in CD-ROM interfaces. While some of the accessory software is terrific for musicians and audiophiles, in this survey we will focus on how the cards work with today's games.

There are two primary routes you can take to the realm of wavetable synthesized game music. If you own a sound card that has a WAVEBLASTER-compatible feature connector (like the SOUND BLASTER 16 or an Aztech SOUND GALAXY PRO 16L), you can buy a wavetable "daughtercard" to attach to your existing sound card. If you don't have such an interface on your existing card, you can purchase a new card that has the wavetable technology built-in. In this survey, we'll look at the "one stop, single card solution," while the following survey will look at the add-on daughtercards.

To test the cards, we employed a somewhat subjective comparison method, using a variety of MIDI samples and actual game music to give us a good feeling for how each card sounds (see sidebar: *Testing, Testing, 1, 2, 3*). We also took notes on system installation and game setup, as these two items account for the majority of hassles a game player encounters.

Now, without further ado, let's look at these cards.

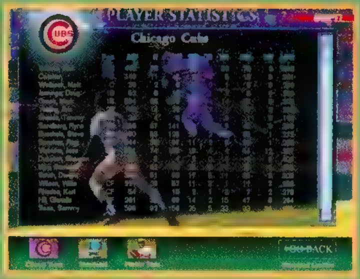
CREATIVE LABS
AWE-32

Creative Labs has come a long way since the early days of the SOUND BLASTER. For today's DOS games, the AWE32 is really a SOUND BLASTER 16 with a built-in General MIDI compatible wavetable synth.

Setup: Like most Creative Labs products, setup was a snap. There are a few jumpers to set, but these are clearly documented in the manual. Some of the jumpers, such as I/O address, may be overridden in software. The software installation was also easy, and gives clear choices about what to install. Since this is a Creative Labs card, there are only two IRQs to worry about, SOUND BLASTER and MIDI, both of which are set up in software.

The biggest problem with this card is the huge amount of memory it eats up. You need to load three drivers in the CONFIG.SYS file. In addition, if you want to use the on-board wavetable capability with games that support General MIDI, you need to load an additional TSR, AWEUTIL, that takes up 43K of RAM! The saving grace is that many of the new games, including TIE FIGHTER and DOOM v1.666, support the AWE-32's wavetable synth directly, eliminating the need to load the TSR. You might ask "why worry about the

[ESPN BASEBALL TONIGHT] *versus* [The competition]



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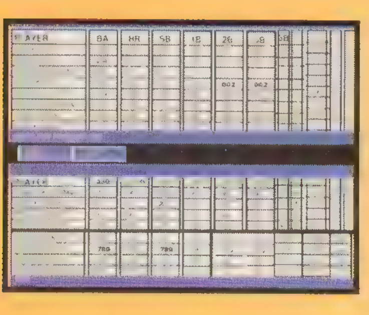

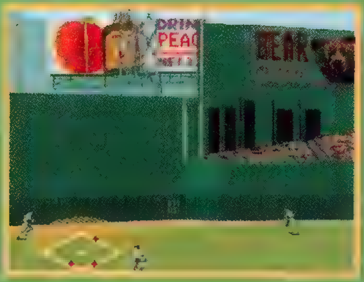

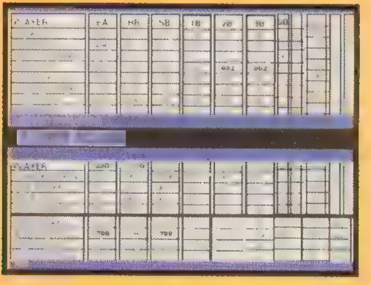

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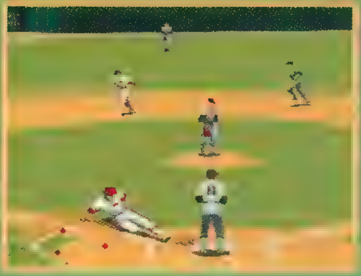

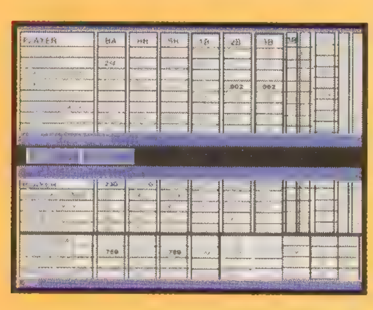

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Circle Reader Service #311

driver if you're running a game that uses a DOS extender?" Well, the TSR doesn't work with protected mode games. If a protected mode game doesn't support the AWE-32, then the card will work as a stock Sound Blaster 16.

Sound Quality: This pricey card doesn't fully live up to its promise. The 1 MB of wavetable ROM contains a full suite of compressed General MIDI sounds, but the result of trying to cram so much into so little space is a mixed bag. The strings showed excessive vibrato in the *Star Wars* theme, and sounded on the shrill side to boot. The trombones sounded like, well, synthesized trombones. The piano in the Mozart sonata was lifeless and lacked depth, the low chords resembled nothing so much as bagpipe chords. The rock sample actually had parts lost in the mix, a sign that "note stealing" was occuring.

The digital sound was clean, with only minor crackles during some of the game tests. The music in TIE Fighter was bloodless. When exiting Strike Commander, a low string tone persisted, and could only be halted by a reboot. The digitized voice was clean in both Strike Commander and Myst. Overall sound quality was pretty typical of most Creative products: solid and predictable, but not great.

Logitech
Soundman Wave

The Soundman Wave is based on the Yamaha OPL-4 synthesizer chip. The OPL-4 is a direct descendent of the venerable OPL-3 used in most Sound Blaster-compatibles since the Sound Blaster Pro. The key point about the OPL-4 is that it is bilingual: it can do FM synthesis and wavetable synthesis.

Setup: The Soundman Wave only has one jumper to set, used to enable/disable the joystick port. Installation was fairly straightforward, and the install program even played background music while working. Overall, the installation is simple, and the documentation is reasonably clear, if a little sparse.

Sound Quality: Like many of the cards in this round-up, when installing a game, you would typically select General MIDI for music and Sound Blaster for digital audio. We encountered no compatibility problems with any of the tested games. Since the OPL-4 chip is a direct descendent of the OPL-3, the card can play FM music if General MIDI is not supported. In our game tests, all the games played fine. The voice in Strike Commander sounded very clear and crisp, with no noise or added artifacts. The music told a different story. The electric guitar sounded completely unreal, and the strings sounded like an old mellotron. The drums in Doom were dull, and the electric bass sounded like it was using oversized rubber bands for strings.

The MIDI tests were puzzling. Logitech claims to have 2 MB of ROM for the wavetable samples, but the MIDI pieces revealed fairly low-quality sounds. The *Star Wars* theme had trumpet sounds that resembled FM-synthesized flutes, and the overall sound seemed flat. The piano in the Mozart piece sounded like a toy. The rock sample revealed a mushy snare drum and a tinny cowbell, although the rest of the instruments were okay.

This card handles digitized effects very well, but the wavetable is only a small cut above FM synthesis.

Advanced Gravis
Ultrasound

The Ultrasound is the Avis Rent-a-Car of sound cards. It really tries harder, often exceeds expectations, but is also quirky and just as often falls short of expectations. The chief problem is that Sound Blaster compatibility is handled through software emulation. There were only two hardware jumpers, one for joystick enable and the other for base I/O address. Note that Gravis is the only sound card maker that implements a speed-compensated joystick port.

Gravis makes up for some of its limitations by copiously documenting *everything*. This card comes with a *29 page README file*. The README file is so long, Gravis supplies a hypertext reader to help you get through all the data. On top of that, they are ruthlessly honest about their limitations (after you open the box, anyway).

Setup: One quirk is that the card comes up using IRQ 11, which locked up our test-bed system. Resetting the IRQ to 7 solved the problem, and the hardware ran perfectly afterwards. This is particularly important in the case of protected mode games, as most of them do not support IRQs higher than 9. Sound Blaster compatibility is handled by a software TSR, SBOS. SBOS actually does a pretty good job of Sound Blaster emulation, but it isn't perfect, and has a number of options that may need to

Speakers: The Weakest Link

Whenever I give advice to friends who are buying audio systems, I tell them to put half their budget for the system into speakers.

A chain is only as strong as its weakest link, and sound is only as good as the weakest component in the sound system. If you pay top dollar for a sound card, then it only makes sense that you would pay for quality speakers. Unfortunately, a lot of multimedia upgrade kits are sold with speakers that would cost a whopping $20 if sold at list price. On top of that, the shelves of stores are filled with speakers that cost as little as $8.00 *for a pair!* Using a pair of these speakers with the sound cards in this roundup is like plugging a fire hose into a lawn sprinkler. I've been hard pressed at times to distinguish crude FM synthesis from a Roland SCC-1 when they've been piped through some of these cheap speakers.

The best solution is to wire your computer sound through your home audio system, but if that's not possible, shop around for a pair of decent multimedia speakers. For as little as $75, you can get a decent set. Of course, like anything else, you can run the cost up in a hurry. The long-standing favorite among the multimedia crowd has been the AR 570 Powered Partners, mustering 35 watts per channel. These babies will run you nearly $300 on the street, but they sound clean and sweet. Recently, Bose has started shipping a subwoofer-equipped system, at a street price approaching $600. Of course, for $600, you can buy a 40 watt per channel stereo receiver and a pair of very nice speakers, which may be the best solution if you've got the room...and the dough.

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be run for a particular game. For example, to run Links 386, SBOS needed to be run with a -x2 option. Most of these exceptions are clearly documented, either in the manual or the README file.

Sound Quality: The MIDI music revealed some interesting strengths and flaws. Except for a brass section that sounded tinny and thin, the overall effect was full-bodied and orchestral. The piano seemed accurate, but lacked tonality and depth, kind of like listening to a second-generation tape recording. The rock piece fared poorest, with a soft electric bass and overall subdued sound.

The game tests were very revealing. The vocals in the Myst intro were fuzzy around the edges. Strike Commander had to be run in Sound Blaster emulation mode, so the music sounded like rather poor FM synthesis, although the voice was clear. Doom, which directly supports the Gravis, fared much better, with both music and digital audio sounding good. TIE Fighter didn't fare so well, despite the fact that LucasArts shipped some updated utilities to ensure that the wavetable synth worked properly.

Advanced Gravis

Ultrasound Max

Most of what we wrote about the Ultrasound applies to the Ultrasound Max. Unlike other General MIDI cards, both Ultrasound cards have no on-board ROM of stored samples. The MIDI sounds are installed on the hard disk and uploaded to the on-board memory (ranging from 256KB to 1 MB) when an application is loaded. The benefit is that sounds can be easily upgraded or changed, but the downside is a potential lack of compatibility.

Setup: The usual cautions about IRQ 11 apply to the Ultrasound Max. The Max comes with a pair of utilities, Mega-Em and Emu-Set. These manage both General MIDI and Sound Blaster digital audio compatibility (not FM sound) simultaneously, for setups that want to use wavetable music and Sound Blaster digital audio. When Strike Commander came up, we were rewarded by initially pleasing music, then a flood of seemingly random piano notes during the CD intro. When we went to the main menu and ran Strike Commander, it dropped us to DOS, with a message telling us it couldn't find the installed sound cards. Gravis is hard at work updating and improving their emulation utilities.

Sound Quality: To be fair, games that support the Ultrasound directly yield good results. The MIDI sounds are pretty good (there's a total of 5.6 MB of MIDI samples stored on the hard disk). Some games supply a file to initialize the Max (or regular Ultrasound), mainly to download the MIDI sounds to the on-board memory of the card. Ultimately, the decision on the part of the buyer comes down to whether or not you like the Ultrasound's unique mix of applications, features and philosophy for handling MIDI (i.e., dynamic RAM versus fixed ROM).

Mediatrix

Audiotrix Pro

This card uses the Crystal 4231 chipset for digital audio. The chipset is compatible with both Sound Blaster Pro and Microsoft Windows Sound System. The downside to this is that the card requires *three* IRQs: one for Sound Blaster, one for Windows Sound System, and one for MPU-401 MIDI.

Setup: All addresses and IRQs were set through the installation software: there were no jumpers, a real pleasure! However, there are some quirks during installation. For example, the card requires an environment variable, MEDIATRIX, to be present. This variable defines the location of a piece of software that's downloaded onto the card to enable the MPU-401 and the Sound Blaster emulation. However, the install program didn't set up the variable, and it was only documented in an obscure help file on the disk, and nowhere in the manual. The manual itself is terse, and lacks some pertinent information.

Sound Quality: Running games was revealing, as always. When we ran Myst, there was a low background hum that, though very low, persisted while the game was running. Strike Commander ran well, although after running Windows, the system had to be cold-booted in order for the game to run properly. The music sounded okay, but not great, and there were some significant pops when the digitized audio started, but they didn't recur in further speech segments. The percussion sounds are very nice...very nice, indeed. The Timpani sounded like they were in the next room. In Doom, the startup chords sound lifeless, and the driving bass line in level 2 sounds limp.

Since it uses the Yamaha OPL-4 chip for synthesis, we feared the worst for the sound quality after our experience with the Soundman Wave. While not the best sounding card in the roundup, it fared well. The MIDI files revealed weaknesses in its orchestral capabilities, but strengths in other areas. The strings sound synthetic, and the brass is somewhat thin. The piano is on the tinny side, while the flute is positively fake. The trombones are pretty good, however, which is uncommon. It did much better with rock music, putting out a solid kick drum sound, and the electric bass sounds full-bodied and lifelike. All of the percussion, including the cowbell, sounded very good.

This is an interesting first product, and it will be worth watching Mediatrix in the future.

Turtle Beach

Monte Carlo

Like the Audiotrix Pro, this card has *NO* jumpers, and all the parameters are set during software installation. The install program, like many in the roundup, is Windows-based, so make sure you have Windows on your system.

Setup: This is a brand new product, and it shows a lack of attention to minor details. The README file, for example, mentions drivers from Crystal, but these have been renamed by Turtle Beach. There's a Windows help file for an Intel product that's never mentioned anywhere, except in another README file that says to ignore some of the information in the help file. It turns out that the help file refers to a product that Turtle Beach has renamed V-Synth, which is a software-based wavetable synthesizer. The downside is that you need Windows and a 486-33 to run the wavetable software.

On top of that, Windows would lock up after setting up the card, so we had to manually edit the Windows SYSTEM.INI file to change the parameters. These are set in a clearly defined section of SYSTEM.INI, but this is not a job for the faint-hearted.

We need to make one point very clear: this is *NOT* a wavetable card when running DOS-based games; it is a stock, Sound Blaster-compatible, FM synthesis card. It sounds like a Sound Blaster for DOS games. The wavetable *ONLY works in Windows!* That said, it works OK as an FM-synthesis card for DOS games.

Sound Quality: Initially, the Myst intro sounded very crackly and distorted, kind of like playing a warped vinyl record on a cheap turntable; this was fixed by switching from the V-synth driver to the stan-

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Sound Card Specs

Sound Card		AWE-32	Waverider	MV Pro-3D	Soundscape	Audiotrix Pro	Soundman Wave	Ultrasound Max	Ultrasound	Soundwave 32 Pro
Company		Creative Labs	Aztech	Media Vision	Ensoniq	Mediatrix	Logitech	Gravis	Gravis	Orchid
List Price		$399.95	$199	$199	$279	$295	$299.95	$249.	$159	$299.
Synthesizer	Chipset	EM8000	ICS Wavefront	Korg	Ensoniq	Yamaha OPL-4	Yamaha OPL-4	Gravis GS-1	Gravis GS-1	Analog Devices DSP
	Wavetable Size	1 MB	2 MB	4 MB	2 MB	2 MB	2 MB	5.6 MB (on disk)	5.6 MB (disk)	1 MB ROM
	OPL2/3	OPL-3	OPL-3	OPL-3	Emulated	OPL-3 compat.	OPL-3 compat.	Emulated	Emulated	Emulated
	General MIDI	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	GS Patches(2)	Yes	No	No	No	No	No	No	No	No
	MT-32	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
	Memory Expansion	Yes(3)	No	No	No	No	No	Yes(4)	Yes(4)	No
	Effects	Chorus/Reverb/QSound	SRS-3D(6)	Chorus/Reverb/SRS-3D	Ne	Optional(7)	No	Focal Point 3D	No	No
Digital Audio	Chipset	SB16	Crystal 4231	Jazz 16	MC68000	Crystal 4231	Jazz 16	Gravis GS-1	Gravis GS-1	Analog Devices
	H/W Compression	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Max Sampling Rate	44.1 KHz	48 KHz	44.1 KHz	44.1 KHz	48 KHz	44.1 KHz	44.1 KHz	44.1 KHz	44.1 KHz
Compatibility	Ad Lib	Yes	Yes	Yes	Emulated	Yes	Yes	Emulated	Emulated	No
	Sound Blaster	Yes (SB16)	Yes (Pro)	Yes (SB2.0)	Emulated	Yes (Pro)	Yes (Pro)	Emulated (SB2.0)	Emulated (SB2.0)	Emulated
	MT-32/LAPC-1	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
	MPU-401	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CD-ROM	Mitsumi	Yes	Yes	Yes(8)	Yes	Yes(9)	No	No	No	No
	Sony	Yes	Yes	Yes(8)	Yes	Yes(9)	No	No	No	No
	Panasonic	Yes	Yes	Yes(8)	Yes	Yes(9)	No	No	No	No
	SCSI	No	No	Yes(8)	No	Yes(9)	Yes	No	No	Yes
	Other	No	IDE	No	No	Yes (Philips)	No	No	No	No
Other	WB Connector	Yes	No	Yes(10)	No	No	No	No	No	Yes
	Other	No	Yes (SRS-3D)	No	No	Yes(11)	No	Yes	Yes	No
	Separate Line Out	Yes	Yes	No	N/A(12)	N/A(12)	Yes	Yes	Yes	Yes

Notes:
(1) Ships with a software-driven wavetable synthesizer developed by Intel called "V-synth." Wavetable is loaded into system memory. It requires a 486/33 or better and Windows 3.1 to run.
(2) GS is an extension to the General MIDI standard as defined by Roland Corp.
(3) 512 KB built-in, expandable to 28 MB using standard SIMMs
(4) 256 KB built-in, expandable to 1 MB using 256 KB RAM chips
(5) No RAM shipped, but expandable to 12 MB using standard SIMMs
(6) Optional Daughterboard, list price $39.95
(7) Professional quality effects daughterboard that adds 3D sound, dynamic effects control, chorus, reverb, etc.
(8) One version of the board ships with support for Mitsumi, Panasonic and Sony; another version ships with a SCSI-II interface
(9) Separate daughterboard for each interface type
(10) Korg wavetable comes on a daughterboard that connects via a Waveblaster-type connector
(11) Memory & ROM expansion board also available
(12) No internal amplifier, so these are by default lines out

dard MONTE CARLO driver. At that point, the sound quality was much better.

Not to belabor a point, but the DOS sound quality is pretty typical of most FM-based synthesizers. In Windows, our MIDI test samples ran well on the 90 MHz Pentium. V-synth sounds better than FM, but definitely not as good as most ROM-based wavetable synthesizers. The brass seemed particularly weak in the *Star Wars* theme, and the piano on the Mozart Sonata sounded like the upright piano in the back of most bars. Snare drums and percussion were very nice—much better than any FM percussion.

Overall, this card seems a little unfinished; its low cost may appeal to some gamers, but remember, it will not give you wavetable quality in DOS games.

TURTLE BEACH
Tropez

The TROPEZ comes with a compressed version of the General MIDI sounds found on Turtle Beach's high-end cards, such as the MONTEREY.

Setup: Unlike the MONTE CARLO, there was one jumper to set for the MIDI address; the default is 330, which is what most DOS games that support General MIDI expect, so you shouldn't have to change it. Other parameters were set in the Windows-based installation program. We did have to change the IRQ for MIDI to 9 (from the default 15), but that was the only change. The TROPEZ uses the Crystal 4231 chipset, so it emulates both a SOUND BLASTER and the WINDOWS SOUND SYSTEM (using up two more IRQs, for a total of three). One minor quirk: when starting Windows, you get the message, "Initializing Wavefront, Please Be Patient." This can take up to 60 seconds. One major quirk: when powering down the system, a high volume drone that gradually fades can assault your ears. It doesn't cause any harm to the hardware, but it is annoying.

Monte Carlo	Tropez
Turtle Beach	Turtle Beach
$99	$249
OPL-3 / Intel(1)	ICS Wavefront
N/A	2 MB
OPL-3	OPL-3
Yes	Yes
No	No
No	No
No	Yes(5)
No	No
Crystal 4231	Crystal 4231
No	No
44.1 KHz	48 KHz
Yes	Yes
Yes (Pro)	Yes (Pro)
No	No
Yes	Yes
No	No
No	No
No	No
No	No
No	IDE
No	No
No	No
N/A(12)	N/A(12)

All of our test games worked very well. SOUND BLASTER compatibility was solid, and the card played wavetable MIDI when selecting the General MIDI option for games. All of the games we tried played without a hitch. There were a lot of crackles and pops during the MYST intro sequence. The music and digital audio for STRIKE COMMANDER played at half speed whenever we would run it right after Windows, but played normally other times.

Sound Quality: The overall sound is not quite as rich, but the card contains among the best 2 MB sample sets we've heard. The strings in the *Star Wars* theme are a little shrill, but the brass is thrilling. The piano sounds are full and the bottom range seems robust. However, the kick drum sounds like a rubber sheet stretched over a cardboard box. Other percussion was more realistic. The music in the games was quite compelling, with STRIKE COMMANDER and TIE FIGHTER both sounding great. One mild disappointment was that the digital audio was a little noisy, with occasional pops, clicks and hissing, as well as artifacts that would occur when exiting games or turning off the computer. Overall, we liked this card.

MEDIA VISION

Pro 3D

The PRO 3D is really a combination of two products from Media Vision, the PREMIUM 3D sound card and the PROFESSIONAL WAVETABLE upgrade daughtercard that uses the Korg chipset. Media Vision sells this as a bundle.

Setup: Installation is relatively straightforward, taking up two IRQs and two I/O address. However, the automatic install selects an I/O address of 320, rather than the more normal 330. It also selected IRQ 5 for SOUND BLASTER sound. The card has only one line out, through its built-in amplifier, so its a little noisier than other cards. Cranking down the little volume dial on the back of the card helps.

Typically, you'd select General MIDI for music and SOUND BLASTER for digital audio, although the card does a good job of emulating SOUND BLASTER FM.

Sound Quality: Initially, the MYST intro sounded noisy and distorted, as if the

Testing, Testing, 1, 2, 3

The Hardware And Software Used For The Sound Check

Hardware:
Intel Premiere Baby AT
Motherboard-based system
BIOS Revision A08
90 MHz Pentium P54C
4 ISA, 2 PCI, 1 PCI/ISA slots
32 MB RAM
2.5 GB Disk
Adaptec 2940A PCI SCSI Controller
Thrustmaster ACM Game Card
Diamond Stealth 64 Video
Graphics Card

Software:
MS-DOS 6.22 (No disk compression)
MS Windows 3.1
QEMM revision 7.03

Note that this is a high-end, purely SCSI-based system, practically guaranteed to uncover any compatibility problems.

Games: We tested both compatibility and output quality with the following games.

TIE FIGHTER from LucasArts: Great music and good use of digital effects and voice. This uses the DOS 4GW extender, which can cause problems for some sound cards.

THE CRESCENT HAWK'S REVENGE from Infocom: This is an older game used to test basic Sound Blaster compatibility.

LINKS 386 PRO from Access: Can be finicky with some SOUND BLASTER clones. Uses the PHAR LAP DOS extender.

MYST from Broderbund: This is a great game that is notoriously finicky about Windows sound.

DOOM (1.666) from id Software: A driving soundtrack and gruesome digital effects, plus the use of a DOS extender makes this another good test.

STRIKE COMMANDER CD-ROM edition from Origin Systems: This game autodetects sound cards and is pretty persnickety about it at that. It also has a lot of digitized voice and effects as well as a terrific soundtrack.

MIDI Samples: These were used to obtain a subjective judge of the sample quality of the wavetable synths.

The Star Wars theme: as shipped with the STAR WARS SCREEN ENTERTAINMENT package from LucasArts.

3rd Movement of Mozart's *Piano Sonata in A (Alla Turca), K. 331:* this comes with PG Music's THE PIANIST, an excellent collection of over 200 piano solos.

Digidog: a sample MIDI rock piece that comes with CAKEWALK PROFESSIONAL FOR WINDOWS.

Audio System: Output from all the boards was routed through a JVC 40 watt per channel amplifier connected to a pair of Infinity mini-monitor speakers (6-inch woofer, 1-inch dome tweeter).

amplifier was being overdriven; cranking back the volume helped reduce the noise. The music in Strike Commander was terrific, particularly the percussion. Speech is very clear. Doom (1.666) played well, too, with the electric bass on episode 1, level 2 sounding stronger than any of the other cards reviewed. Digital effects were awesome in all the games except Myst.

The quality of the MIDI samples was somewhat mixed. The trombones on the *Star Wars* theme sounded like *very* synthetic horns, but the brass section was good. The harp and percussion is very nice as well, but the high range of the trumpet sounded lifeless. The piano on the Mozart Sonata had great dynamic range, and the sound was full-bodied and rich, as if coming from a large concert grand. The kick drum on the rock sample sounded mushy, but all the other sounds were pretty good.

Ensoniq

Soundscape 2000

Ensoniq is a manufacturer of keyboard synthesizers for professional musicians, and this is their first foray into the world of retail computer hardware. The Soundscape 2000 is both a General MIDI wavetable synth and an emulator of Sound Blaster digital audio as well.

Setup: The installation is very straightforward. Interestingly, Sound Blaster emulation can be turned off with software. This feature allows you to run the Soundscape as a stand-alone General MIDI synth with your existing Sound Blaster card. Overall, an easy piece of hardware to set up, but game setup is another story.

Sound Quality: This card is almost, but not quite, Sound Blaster compatible for digital audio. Even the native Windows drivers were problematic. When we ran Myst, the digital audio in the intro played okay, but there was a loud artifact that overlaid the sound, resembling nothing so much as a UH-1 Huey helicopter on final approach. Strike Commander will not recognize the Soundscape as a Sound Blaster, no matter what the setting, so there was no voice. Ensoniq ships a driver to use with TIE Fighter, and that worked very well. Doom, however, exhibited the helicopter effect (actually, more like galloping horses), which was very annoying. Other games will be supporting the Ensoniq directly in the future, so some of the compatibility problems will disappear.

The horns in the *Star Wars* theme sound anemic and shrill, while the strings are ethereal. The harp and flute were pretty good, though. The piano solo sounded a little thin, but the low range actually sounds like a piano. The electric bass lacks some "oomph," but the percussion and organ sounds are quite nice. Overall, one of the better 2 MB sample sets, although we expected a little better from a manufacturer of keyboard synthesizers.

Stretching Stereo

New Technologies That Will Surround You With Sound

Many computer game developers are beginning to incorporate stereo audio into today's games. But lately, there's been some new developments that widen the virtual sound stage and add audio depth. These technologies are optimistically known by a variety of names such as 3D sound, holographic sound, etc.

There are two primary methods of 3D sound enhancement available today: Q-Sound and SRS (Sound Retrieval System). Q-Sound is shipped with most Creative Labs sound boards. There are two fundamental problems with Q-Sound. First, sound files need to be specially encoded. Second, Q-Sound works its magic within a fairly narrow area, traditionally known by speaker manufacturers as the *sweet spot.*

The other method gaining wide acceptance is SRS. Developed at Hughes Aircraft, SRS does *not* require special encoding, and it isn't particularly sensitive to a sweet spot. In fact, SRS Laboratories claims that Q-Sound is improved by running it through an SRS-capable piece of hardware by essentially delocalizing the Q-Sound sweet spot. SRS is based on research as to how sound actually impinges on the ear, which has an irregular shape. Because of the shape of the ear, sound is perceived differently when its behind, to the side or in front. SRS adds information to the sound stream that simulates how the ear receives information from different locations. At times, the effect can be quite dramatic, but it can also be hilarious if the wrong sounds are given directionality. (Imagine the sound of fingers on a guitar fret appearing in different, random locations.)

SRS comes built into the Media Vision Pro-3D card, and does generate an interesting effect. The sound stage appears to widen and get a little deeper. There's no way to adjust the effect on the Media Vision card, however. Another company, NuReality, has begun marketing SRS effects boxes. We had the opportunity to examine the Vivid 3D Plus from NuReality. The Vivid 3D Plus allows you to adjust the centering and spatial qualities of the SRS effect.

The NuReality 3D Plus uses SRS technology to wrap gamers in a thick cloak of sound.

We ran the sound from our reference setup through the Vivid 3D Plus. The effect was quite interesting. The centering function seemed to affect the digital audio, bringing it "forward," whereas the space control seemed to have a greater impact on MIDI music. In fact, the music from Strike Commander seemed to come from different parts of the room. When SRS was bypassed, the sound suddenly seemed lifeless and two dimensional. All in all, this is a very interesting product. Our only caveat is that the Vivid 3D Plus seems to add some noise to the audio stream in the form of the occasional popping sound.

Aztech

Waverider

We approached the Waverider with a little trepidation, because we'd had some setup nightmares with past cards from Aztech. Apparently, the company has been listening to the complaints, because this newly released product was a snap to install.

Setup: Although the initial setup is through Windows, the card ships with a

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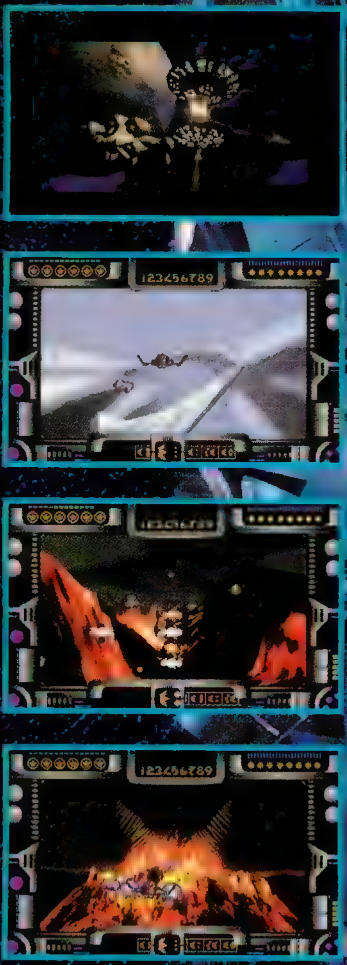

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DOS configuration utility that allows you to change any of the parameters. This card uses the Crystal 4231 chipset, and like most setups defaults to IRQ 11 for Windows Sound System compatibility; this was easy to reset to 7.

Sound Quality: The intro to Myst was a little crackly, but overall played cleanly, and the voice was crystal clear. The default audio mix for DOS has the best balance of any of the cards. In Strike Commander, both the music and voice were clearly heard. The timpani sounds were a little muted, and the horns sounded a little "synth," but otherwise the music was good. The electric bass in Doom was a little anemic, but the string bass sound was quite striking. The shotgun blasts sounded altogether too real. There was some note stealing in evidence with the TIE Fighter music, but overall, the game sounded very good. The digital audio is cleaner than almost any other card.

This card uses the same MIDI ROM samples as the Turtle Beach Tropez, so the sound is actually quite similar. The horn section in *Star Wars* was decent, and the piano was more evident than in other cards. There is a little excess vibrato in the strings, but the piano is full bodied, perhaps the best in a 2 MB card. The clavinet sounds better than any other card, and the electric bass throbbed. Overall, a very nice card at a compelling price.

ORCHID
Soundwave 32 Pro

The Soundwave Pro is an upgrade from the Soundwave 32 SCSI incorporating some new algorithms for synthesizing music. According to Orchid, the Soundwave Pro mixes FM and wavetable synthesis to get an optimal sound, depending on the type of waveform being generated.

Setup: This card takes four, count 'em, four IRQs, which will have most users juggling their configuration. Most of the setup occurs in software, so that part, at least, is straight-forward.

Sound Quality: Game compatibility is problematic with the Soundwave. We could get digital audio out of only one game, Doom. All the other DOS games either didn't play digital audio, or refused to recognize the card and dropped back to DOS. Given the nature of this card, you'd suspect a Windows game would run better, but you'd be wrong. When running Myst, there were audio artifacts that sounded like a helicopter in the distance, and some of the audio exhibited distortion resembling the wow and flutter when playing an old, worn cassette tape.

The MIDI tests fared a little better, though not much. Overall, the Soundwave sounded muffled and muddy compared to other cards. The one megabyte of wavetable samples, coupled with the FM blending, didn't even sound as good as the other 1 MB card, the AWE-32.

ROLAND
RAP-10 AT

The RAP-10 was originally designed to be a moderately priced digital audio recording and General MIDI card for musicians. However, Roland has recently gotten support from some of the major developers of sound libraries for computer games, so full support for this card will be forthcoming. When it does, this will be a great card to have, as it easily has the cleanest digital sound of any of the cards surveyed. This card will coexist with a Sound Blaster, so you can always use it as a General MIDI card and route the MIDI through the Sound Blaster audio input.

Setup: This card has dip switches for the I/O address and joystick. Overall, it was well documented and easy to set up.

We only had one DOS game on hand that claimed to support both the MIDI sound and the digital audio of the RAP-10, but it didn't recognize the RAP-10's digital audio. Note that the RAP-10 is *not* Sound Blaster compatible, and makes no claim to be.

Sound Quality: When running Myst, the voice and intro digital audio was crisp, easy to understand, and noise-free—very surprising for this game. The RAP-10 didn't sound quite as nice as other Roland cards (like the SCC-1), but it is still a high-quality device. Trombones sounded very synthetic, and the flute is thin in the *Star Wars* theme. On the other hand, the string section seemed quite robust. The piano sound was rich and full-bodied. The kick drum in our rock sample was a little muffled, but the percussion was good and the electric bass was right on target. Overall, the RAP-10 is a quality card, and worth watching in the future.

ALTERNATIVES

On the whole, these cards deliver MIDI sound quality that is as superior to FM synthesis as the original AdLib card was to the PC speaker. These are not the only solutions, though. As mentioned earlier, more and more cards are shipping with a little connector that was originally popularized by Creative Labs for mounting their Waveblaster daughtercard onto a Sound Blaster 16. By combining a Sound Blaster 16 ($179) and a Roland SCD-15 daughtercard ($279), you can have a solid sound setup.

Ironically, Creative Labs has recently shipped their Sound Blaster 16 value edition, which does not have the daughtercard connector. Even people who buy this card are not out of luck, however. They can hook up the Roland SC-7, an external box that contains all the Roland General MIDI sounds and lists for $299. You connect the MIDI port to a MIDI connector cable pair, which is attached to the Sound Blaster. The audio output from the Roland is then routed to the audio input on the Sound Blaster 16.

CONCLUSIONS

These cards, taken collectively, represent the future of gaming audio. All of them sound better than FM synthesis, and digital audio quality is improving as well. Here are our picks by budget.

At the very low end, the Gravis Ultrasound is a good value at $149, although getting it to work with games that do not support it directly can be painful. Our favorite, though, is the Aztech Waverider. At a list price of $199, this card is the best of the 2 MB sample sets, installed flawlessly, and ran with everything we threw at it. This card is a winner, and will probably show up in a lot of pre-built computer systems as well as on the retail shelf. The Turtle Beach Tropez is a close second, but it was a little noisier in digital audio and costs more at $249. The overall best in the roundup is the Media Vision Pro-3D card. The Pro-3D's Korg wavetable chipset is one of the best we've heard. Priced at under $300, it's a terrific value.

Finally, the Roland RAP-10 card will be very interesting to watch as more DOS games begin to support it. It has great MIDI and the cleanest digital sound of any card here. It's on the pricey side at $349, but it delivers terrific sound.

Clearly, sound and music in computer games have become an important part of the gaming experience. The quality of sounds emerging from today's cards far exceeds that of the past, and even the lesser cards in our roundup add a level of realism that was unheard of just three years ago. So the next time you consider an upgrade, take a look at that old FM synthesis card. Then go audition one of the surveyed cards. Your ears will thank you.

This one you won't want to miss.

It's been nearly three years in the making with a budget we won't even talk about. It employed a team of over a hundred people, including programmers, artists, musicians and writers as well as Hollywood make-up and special effects houses (we liked the flames in *Backdraft*™ so we hired the movie's special effects house to bring in a little heat). As the creators of *Wasteland*™ and *The Bard's Tale*™, our goal was to produce a game every bit as innovative and unique. We think you'll like the results.

Art and Stuff

Graphically, the game is state-of-the-art stunning (we're a little biased but check out the screenshots for yourself). We used a combination of live actors and computer generated creatures with Silicon Graphics environments and magical effects which were painstakingly rendered down to the finest crack, doorway and magical lightning storm.

The Game's the Thing

A combination of traditional role playing and interactive storytelling, *Stonekeep* mixes a detailed storyline and character interaction with puzzle-solving, magic systems, character attributes and combat. It all comes together in a system that allows for quality storytelling combined with a powerful, yet easy-to-use control system (intuitive without being watered down).

© 1994 Interplay Productions. Stonekeep is a trademark of Interplay Productions. All Rights Reserved. The Bard's Tale and Wasteland are trademarks of Electronic Arts.

The Box, the Book and Story

The packaging is every bit as cool as the game. Shipping in a special tombstone-shaped, hologram box, the package starts you on your quest "through dark corridors, treacherous sewers and subterranean realms of faeries, magick and the living dead." (We had to throw a bit of marketing hype in here somewhere.) Along with the skeleton hologram cover, you also get a limited edition, hard-bound Stonekeep novella by Steve Jackson and David Pulver.

Interplay™ "By Gamers. For Gamers."™ is Interplay's slogan and *Stonekeep* is the kind of game we've always wanted to play. It looks cool, sounds great and tells a good story. It's one of those games you'll stay up playing until three in the morning on a work night. Basically, it's just a lot of fun.

A CD-ROM, Role-Playing Experience for IBM and Compatibles.

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GT SOFTWARE IBM CD #36320 **$45**

CYBERIA

The year is 2027. Global terrorists rule Mankind lives on the brink of destruction As if that isn't horror enough, a device, code named Cyberia, has just been discovered beneath the frozen wasteland of Northern Asia But this is no ordinary device. This is the ultimate doomsday device, developed by an ancient civilization. They created it to be the ultimate protector of a new world order. Now, its discovery could mean the end, unless...

INTERPLAY IBM CD #36477 **$46**

ZIG ZAG

The word game that is a secret! Includes myriad word puzzles, user defined dictionary, built-in dictionary, and on-line hints. Play the word adventure game and see how close you can come to completing the grand adventure. If you're stuck, use the on-line hints and intuitive interface. Play via modem or across a network for an additional challenge. It's a word game that you can't put down with non-stop entertainment for the whole family. Mac and Dos versions available.

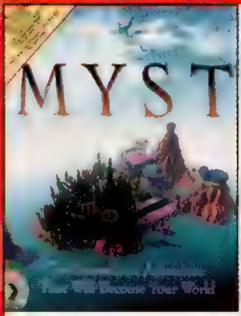
QQP WIN #34181 **$29**

NATIONAL LAMPOON'S BLIND DATE

A humorous CDROMance adventure in which the player can experience the angst of a first date. But you must say all the right things to "further" the date. Sandi is the object of your affection, and in order to win her over, you must choose the right response. So when Sandi poses a question, carefully weigh your response. If you do, you may go all the way in this full-motion video challenge! Mac CD version available.

TRIMARK IBM CD #36755 **$38**

MYST



You pick up a battered, old book and are transported to MYST, an eerily empty world created by a man who wrote books that could transport readers to fantastic worlds. What happened to him and inhabitants of MYST? It's up to you to untangle the terrible web of deceit that spans this surrealistic world. Stunning 3-D photo-surrealistic graphics, non-linear gameplay, an original soundtrack and sound effects keep you spellbound throughout your visit to MYST! Mac CD version available.

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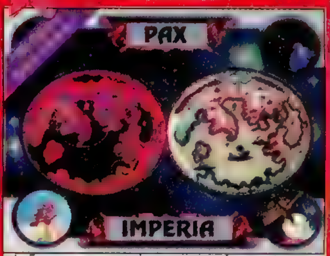

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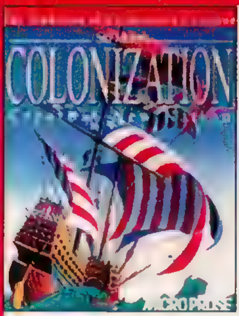

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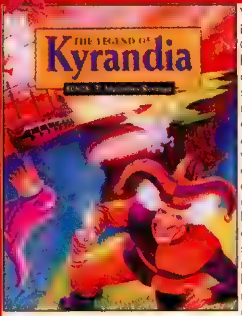

You, Malcolm, infamous Court Jester, have one last chance to save your rude, misunderstood life! Arm yourself with swimfins and an inflatable pool toy and roam the Earth, attempting to solve the murders behind the mad monarchy But be careful! Everyone in your country despises you. The Underworld entices you. The pirates double-cross you. This fantasy world is filled with magic, and the trick is to stay alive

VIRGIN IBM CD #36831 **$39**

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CENTRON SOFTWARE IBM CD #36781 **$28**

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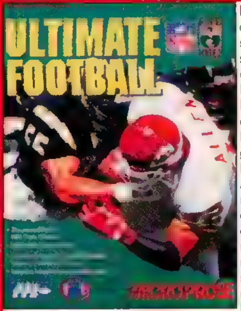
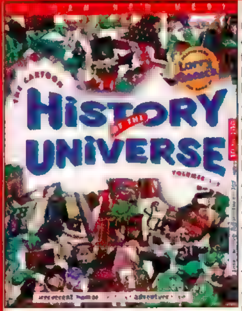


Play an action oriented NFL simulation, or set-up, run and manage fantasy football leagues and teams Features the genuine NFL Players Association roster! You , deal with drafts, trades, injuries, and more. Speech, sounds, texture mapped fields, stadiums, and skies all add to the realism. Automatically update the real '94 NFL stats and rosters weekly, through PRODIGY/FFL Stat Service or FSPI BBS Stat Service. The optional FFL Scoring System includes performance and distance scoring methods.

SPECTRUM HOLOBYTE IBM CD #35712 **$45**

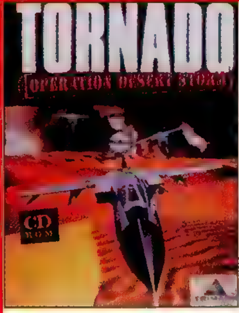
CARTOON HISTORY UNIVERSE



A brilliant hip and hilarious adventure takes you from the Big Bang to Alexander the Great. The historically faithful trip is led by the Amazing Professor who'll make you laugh as he lectures. Enter into his Time Machine and be prepared to experience all the weird and wonderful history they never taught you in school Features 17 interactive games. For ages 10 to 100, it will entertain and educate your whole family Mac CD version available

UN DISTRIBUTION IBM CD #36627 **$30**

TORNADO



Operation Desert Storm, January 17, 1991, somewhere over Iraq Your Tornado Squadron is instructed to annihilate Saddam Hussein's airfields. You must fly through the most impenetrable air defenses in the Gulf And, in this hostile landscape, there's nowhere to hide. Includes 18 Desert Storm missions. Three European Combat Arenas feature 54 detailed missions. Choose from a wide array of weapons, and go in solo or take your squadron

TRIMARK IBM CD #36754 **$25**

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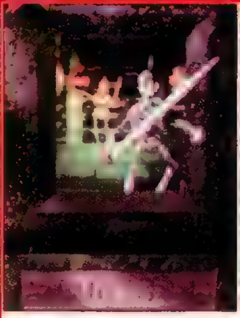

Your soul has been taken for safekeeping by a virtuous goddess. Now your quest to save the universe and regain your life begins! Travel from the perilous corridors of a ruined fortress through subterranean realms and beyond. Along the way encounter creatures who challenge your intellect and emotions. Your quest climaxes in your ultimate moment of truth! 3-D, full screen graphics add realism to the terror.

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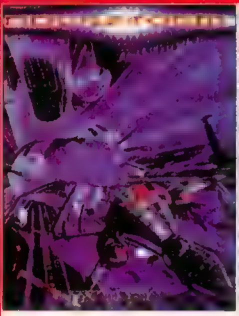

Year 2129. The Bator System. You're the Last Defense. Data Grid, a sentient computer network, has begun waging war on the Federation. In a last ditch effort to save humanity, the experimental fighter Scavenger 4 is launched. Its mission: track down and destroy the Data Grid's heavily armored control center. Grab the controls and pilot the super sonic Scavenger 4 on its desperate mission. The fate of the solar system rests in your hands!

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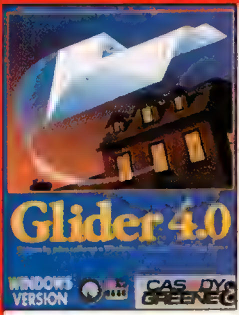
MICROLEAGUE MAC #30891 **$19**

GLIDER 4.0



Deceptively simple arcade game that pits you, as the pilot of a paper airplane, against a house full of surprises Your goal is to fly your plane across each room, without crashing into furniture or encountering other hazards such as tables, balloons, helicopters, electrical outlets and candles Your only help is to shoot an occasional rubber band at an enemy or capture a battery for a turbo charge Features hundreds of rooms in an eccentric old mansion to keep you busy for hours

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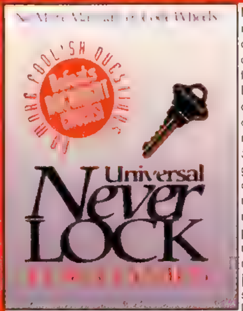

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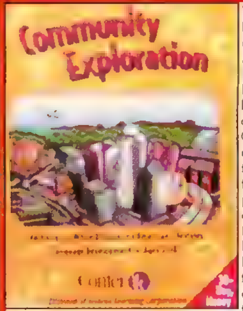

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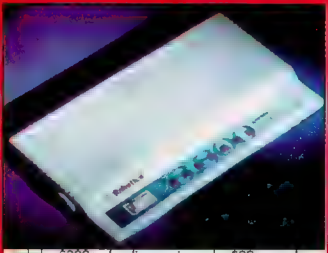

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In Search Of The Ultimate... Wavetable Daughtercard

Wavetable Daughtercard Mounted on a 16-Bit Sound Card

Photo by John Kleinman

Eight Daughtercards Come Bearing A Generous Dowry Of General MIDI Sounds

by Bobby Prince

Think of your favorite song. What makes it your favorite? Chances are, part of the answer will be that it has some really cool lick by one of the artists performing on the recording. You look for that lick each time you listen to the song, and you never tire of hearing it.

Now put yourself in the composer's shoes at the time that the song was written. You have this idea in your mind and you want to express it the coolest way possible. You bring in the best soloist you know and, on the first take, magic occurs—there's this unbelievable riff at just the right place in the recording. So, you mix the recording down to a digital master. Listening to it is just like being there when it happened. From there you move the master to an audio CD. Yep, it's still just like being there. You want people without CD players to hear this great song too, so you record from the master to a cassette. Well, it's not like being there—the riff lacks the sparkle and punch it had on the master. Without this sparkle and punch, the riff loses emotion and the whole point of the musical statement is lost. You release the cassette with trepidation, hoping that somehow the emotion will come through.

Until recently, composers of game music have felt like they were providing cassette quality music at best. This was because the only sound cards available used what is called "FM synthesis." With this type of music synthesis, the sounds of instruments are roughly approximated using waveforms created by the synthesizer chip. The resulting instrument sounds lack sparkle and punch over the broad range of instruments used in game music. But recently, composers have had a chance to deliver CD-quality audio through newer waveform synthesizers using a technique called "wavetable synthesis." Sound cards using this technology store the waveforms of real instruments on a ROM chip. Since the card is making music using actual instrument sounds, not approximations, the sounds are more real and robust than FM synthesis.

What is a wavetable synthesizer daughtercard? It is a wavetable synth mounted on a printed circuit card. It plugs into a sound card that has a daughtercard connector. It allows the game player to have wavetable synthesized music, as well as the music that is available directly from the host sound card. So, if you have a sound card with an FM synthesizer and you install a wavetable daughtercard, you will have both FM synthesis and wavetable synthesis available for your game music. The daughtercard uses the sound card's mixer, amplifier and external connectors, so there are no cables and connectors to worry about; there is only the single connection between the daughtercard and sound card. In this article we'll compare seven different cards. But first, we'll have to know what we are comparing.

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DYNAMICS ARE EVERYTHING

Most computer game music is composed and performed using a wavetable synthesizer. The game music data will generally sound OK on any wavetable synthesizer, but the sparkle and punch may get lost on some. The reason for this is the dynamics of a patch can vary greatly from card to card. What is a patch? A patch is a numbered "slot" that an instrument or set of instruments is placed into. "Patch" and "instrument," though many times used interchangeably, do not mean the same thing, as a patch can contain more than one instrument.

Dynamics are extremely important in enabling the delivery of sparkle and punch. To understand what this means, imagine a composer sitting at a computerized grand piano and performing a piano concerto. He uses every nuance of great technique to deliver the emotion he feels. His actual performance is recorded by a computer that has the capability of recording each piano key played, including the time each is played, how hard each key is hit, and how long the key is held down, among other things. At times during the performance the composer plays ten notes at a time, all of which the computer accurately records. After saving the computer file of his performance, the composer sends it to a computer game company which licenses it for an upcoming release.

The game company is very excited about the composition. They played it numerous times on their wavetable synthesis card, the same brand that the composer used. It sounds exactly like it did when the composer performed it. It sounds fantastic! Then, the music file is sent to another member of the game development team. This person happens to have a brand new Acme "Coyote" wavetable daughtercard (a fictitious device). When the music file is played on the Coyote, it sounds like notes are being hit late. When the music slows down, it sounds like notes cut off early. During faster portions of the composition with a lot of notes playing at once, it sounds like notes are getting bluntly cut off. Because proper grand piano dynamics were not built into the Coyote, the previously marvelous performance now sounds like junk. What is going on here?

The late notes are a result of the attack designed into the Coyote's piano patch. Playing a song using this patch is like playing the computerized grand piano with sponges on the tips of your fingers, making the music sound sluggish. On some of

The Daughtercard Dictionary

Don't let the tech-speak fool and confuse you. Be on the look out for:

Patches: This is the term used for digitally recorded instrument and sound effects. All of the daughtercards reviewed have the General MIDI standard set of 128 patches. At this stage of computer game music, patches other than these default 128 are not used.

Polyphony: Polyphony is the number of notes a synth can play at one time—e.g. a standard piano has 88 note polyphony as it is capable of sounding all 88 keys at the same time. The amount of polyphony advertised can be very misleading. So can the terms used in connection with polyphony. "Voice" and "note" are most often used here. Voice is the more accurate term. You are a member of a six person choir. You are one voice out of six voices. The choir has six voice polyphony. Your choir does a lot of very modern music and most of the time each member of the choir sings a note different from the other members. But, sometimes two or more voices sing the same note. If the whole choir sings in unison, you would have six voices and only one note played. All of this terminology can be confusing, I know. Rest assured that all of the reviewed cards have sufficient polyphony for the foreseeable future in game music.

16-Part Multi-Timbral: Big deal. All daughtercards are capable of playing 16 different patches at once (one patch per each of the 16 MIDI channels).

Megabytes of ROM: ROM is the memory that stores the instrument data (sounds or waveforms) on a wavetable daughtercard. It must store data for at least 128 patches. So, the more ROM the better? Not necessarily so. The quality of the data is more important than the amount of data. Let your ears decide, not the number of MB of data.

Digital Effects: Note that these are not sound effects, they are enhancements to the sounds the card delivers. "Reverb" is an effect that makes the music sound like it is being played in a room or even a stadium or cavern. "Echo" is an effect that you hear when someone yells in a cave. Reverb is really a very fast echo. "Chorus" is a sometimes pleasant wavering effect that makes the affected patches sound fuller. To me, digital effects make a lot of difference. At their default settings, most daughtercards with digital effects have a more "CD audio" sound than those without. In the near future there will probably be games that specifically support certain daughtercards. This specific support will certainly include "dabbling around with the digital effects."

General MIDI Compatible: General MIDI is a standard. All of these cards are General MIDI compatible (with the possible exception of the Media Vision Professional Wavetable Upgrade).

Multiple Drum Sets: Unless a game specifically supports a daughtercard (this means that there is a music data file particularly written for the card), the only drum set used by the composer will be the one the card defaults to on powerup. This is the only drum set of interest to the game player, as it is presently the only one used in computer games. The drum sounds available in the default set are standard from card to card as far as the name of the percussion instrument, but there are differences in the quality of the sounds and the tuning, attack speed, decay, etc.

Number of Sampled Sounds: Again, the important thing is not the amount but the quality.

MT-32 Mode: Because the MT-32 synthesizer (an FM synth) allowed a composer to design his own patch sounds, many games include MT-32 music that does not use the default MT-32 instrument set. Since the daughtercards with an MT-32 mode do not accept any customized instrument settings, they will not recreate the music properly in these types of games. If you have games that you know use the default MT-32 instrument set, this mode would be important for you.

Volume and Panning: As with General MIDI compatibility, don't worry about these terms. All reviewed cards have appropriate volume and panning (with the possible exception of the Media Vision card). Pan is the placement of individual patches within a stereo field. At any one time, a MIDI channel can only have one pan setting and one volume setting. These settings only affect the patch being played on that one channel. With 16 MIDI channels, there could be up to 16 different patches placed in up to 16 different locations in the stereo field (from extreme left and right to the very center).

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the Coyote's patches the exact opposite is true and notes are attacked too quickly, making the music sound rushed.

The truncation of notes during slow parts of the composition is caused by the Coyote's piano patch not ringing as long as the composer's grand piano. No matter how hard one might bang out a part, the Coyote just cannot sustain the notes as long as a "real" piano would. On some of the Coyote's patches the exact opposite is true and the patch rings for much longer than the "real" instrument would.

The other problems can also be traced to limitations and problems in the implementation of the dynamics on the Coyote. If the composer had originally performed his masterpiece on the Coyote, he would have noticed these problems and would have changed his composition and playing technique to make up for the Coyote's limitations.

For you to hear exactly what the composer wrote and performed, you'd have to play his song on the same device he used. Since one cannot assume that every gamer has the same card, most game developers rely upon the sound programmer to come up with a driver for each type of synthesizer supported in the game. This allows one music file to sound acceptable on all supported sound cards. "Acceptable" in this instance can many times be likened to the cassette mentioned above. Even if the music is tweaked just for a particular synthesizer, that synth may not have the capability of producing the sparkle and punch that the composer wanted to get across.

HOW DO WE COMPARE?

To compare the sound quality of these cards, I used a "semihemidemi-scientific" method. I made up a list of 31 songs that used all but 15 of the 128 default patches available on each card. The songs were from actual computer games. I used the same computer, the same sound card, the same cables, and the same speakers for my comparison. The only thing changed for each listening test was the daughtercard. By synchronizing the test songs to a digital multitrack tape recorder, I recorded each daughtercard in stereo (using two tracks). This method had all of the cards playing the same thing at the same time on the tape so I could jump from one card to another card quickly to compare the sound. To listen to one sound card alone, all I had to do was turn up the volume on its tracks alone. In the electronics magazines, this is usually called "A/B testing." You have probably done this while comparing speakers in a store. This method lessens the chances of forgetting one sound while listening to another.

Please note that I love all types of music, but I cannot be objective when it comes to what I like in sound. I don't know anyone who can. What I like may not ring true for you. So, I am going to make some subjective statements which are only true for me. Take them as *some evidence* that you can consider when you decide to buy a wavetable daughtercard. Buy what you like. As you know, no one can tell you what is "music to your ears."

AND THE RESULTS, PLEASE

Figure 1 shows the results of the listening tests. On some songs, more than one card was selected as best, meaning that there was a tie. "Acceptable" in this figure means that the "sparkle and punch" of a song came across on the card. The higher the score in "acceptable," the better the chance a card will consistently deliver a quality interpretation of a piece of music. The higher scores in the "best" column probably speak to the quality of the individual patches on a card. If a card was rated best on a song, it was also considered acceptable for that same song. And now, on to the individual cards...

Roland Consumer Products Group

Sound Canvas SCD-10 and SCD-15

You should note that the majority of game music composers use the Sound Canvas when composing/performing for game soundtracks. Is this because it is best? Maybe, maybe not. It was first and quickly became an unofficial standard. If one of the other cards had come first, it could possibly be the present unofficial standard. The Sound Canvas has excellent to very acceptable patch sounds throughout. Its dynamics (attacks, sustains, envelopes and such) are the standard for other cards to follow.

For game play, there is no difference between these two Sound Canvas cards. For those of you who may want to experiment with MIDI and sequencing, pay the extra money for the SCD-15, which is the equivalent of the patches and digital effects on the much more expensive SC-55 Sound Canvas.

The first 1000 SCD-10's had problems working with a Sound Blaster AWE-32. This has been corrected and Roland will upgrade your SCD-10 free if you have this problem. The problem has no effect on the SCD-10 when used with sound cards other than the AWE-32.

Ensoniq Multimedia Products

SoundscapeDB

The synth chip is the same on this card as on the Sound Galaxy Wave Power, but that's where the similarities cease. For 1MB of ROM, the sounds on this card are exceptional. If the card had digital effects (reverb), it probably would have rated higher than its already impressive score (reverb can smooth out minor defects in patch sounds). Even at that, I do not recall missing digital effects when I listened to this card. While it doesn't have quite as many memorable/notable patches as the Sound Canvas, what it does have gets the job done. It does a great job of emulating the Sound Canvas' patch dynamics (attacks, sustains and envelopes).

Creative Labs

Wave Blaster

This was the product that started the whole daughtercard thing. It was the first card that hit the shelves and was great at

The Prince Test Results *(Figure 1)*

Manufacturer/Name	Times Rated Best	Times Rated Acceptable
Roland Sound Canvas SCD-10	31	31
Roland Sound Canvas SCD-15	31	31
Ensoniq	18	28
Media Vision Professional Wavetable Upgrade	15	26
Turtle Beach Rio	4	21
ALR Wave Express Module	6	17
Aztech Labs Sound Galaxy Wave Power	2	15
Creative Labs Wave Blaster	3	14

These ratings reflect the subjective (expert) opinion of the author. Different ears have different tastes, so use these ratings as a rough guideline and be sure to listen to a card before a purchase.

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that time because there was nothing to compete with the product. Now there are compelling products like the Sound Canvas cards, which far exceed the WAVE BLASTER in sparkle and punch, and really give you more bang for your buck. In addition to being General MIDI compatible, these newer cards have effects like chorus and reverb which the WAVE BLASTER lacks. After listening to the other cards in this survey, it's apparent that the WAVE BLASTER patches just aren't as good as some of the more recent cards like Ensoniq's SOUNDSCAPEDB. Creative Labs has mentioned that they have a new version of the WAVE BLASTER coming out, but they didn't have many more details at press time.

MEDIA VISION, INC.

Professional Wavetable Upgrade

This card has many excellent patches. Panning was reversed, meaning that instruments placed to the left by the composer will sound like they were placed on the right. The drum channel (MIDI channel 10) would not respond to pan. This is required for General MIDI compatibility. Is this important? I didn't notice it until about the 15th song I listened to (I noticed that the drum set was backwards). One not familiar with patch pan placement on a particular song will never notice any of this, and it is not a significant problem for game music. This card also did a great job of emulating the SOUND CANVAS' patch dynamics (attacks, sustains and envelopes).

TURTLE BEACH SYSTEMS

Turtle Beach Rio

REVERB anyone? Wow, the default digital effects on this card are what studio engineers call "wet" (a monsoon?). You will have no doubt that this card has digital effects and that they are working from the first listening. This card would have rated higher in my tests if the default setting of the digital effects had been reduced. At times the effects caused patches to ring long after they should have stopped. There are some excellent patches here, and this card did an admirable job of emulating SOUND CANVAS patch dynamics.

ADVANCED LOGIC RESEARCH

ALR Wave Express Module

This card had some beautiful patches. Since it includes Roland MT-32 and LAPC-1 compatible patches, I can see how the 6MB of data rated lower here than a card with 1MB of ROM. For beginning MIDI musicians who also want a game music card, this may be an excellent "one card fits all" decision. I didn't listen to the non General MIDI patches, but if the General MIDI string patch is an example of the quality, the rest of the super-orchestral patches should be exceptional. I'd like to see this card with only high quality General MIDI patches (leaving off the MT-32 and LAPC-1 patches). With 6MB used for only 128 high quality patches, this could be a killer game music card.

AZTECH LABS, INC.

Sound Galaxy Wave Power

The WAVE POWER and the ENSONIQ cards both use the Ensoniq Wavetable synth chip. So, why weren't the results of the listening tests the same? Remember that the ROM chip holds the instrument data, and the two cards have different instrument data. As you can see, there is a big difference in the results reflected in Figure 2. This difference supports the important fact that data quality is not reflected in ROM size.

EAR CANDY

Over the month preceding the writing of this article, I have had the pleasure of listening to music as the game music composers intended it. In all cases, I merely plugged a wavetable synthesizer daughtercard into a sound card that has a daughtercard connector. No muss, no fuss, no setting of IRQ, no switches, no drivers or TSRs—nothing. If the sound card is already set up properly, just plug and play. What a pleasure! The games that support daughtercards will most probably mention supporting "WAVE BLASTER or compatible" on the packaging. Many of the games will have "WAVE

The Daughtercard Specs At A Glance

Manufacturer, Name (Synth Chip)	GM* Compatible	ROM	Polyphony	Effects	Length/Width/Depth (inches)**	Components Mounted***	Price
ALR Wave Express Module (Kurzweil)	Yes	6MB	32	Reverb	6 3/16 X 3 1/2 X <1/2	Toward sound card	$349
Aztech Sound Galaxy Wave Power (Ensoniq)	Yes	2MB	32	None	5 1/2 X 3 1/2 X <3/4	Away from sound card	$149
Creative Labs Wave Blaster (Emu)	Yes	4MB	32	None	5 1/2 X 3 1/2 X <1/2	Toward sound card	$249
Soundscape DB (Ensoniq)	Yes	1MB	32	None	5 1/2 X 3 1/2 X <3/4	Away from sound card	$129
Media Vision Professional Wavetable Upgrade (Korg)	Yes†	4MB	32	Reverb/Chorus	5 1/2 X 3 1/2 X <1/2	Toward sound card	$199
Roland Sound Canvas SCD-10 (SCB-7 GM board)	Yes	4MB	28	Reverb/Chorus	5 1/2 X 3 1/2 X <1/2	Away from sound card	$229
Roland Sound Canvas SCD-15 (SCB-55 board)	Yes	4MB	28	Reverb/Chorus	5 1/2 X 3 1/2 X <1/2	Away from sound card	$299
Turtle Beach Rio (ICS Wavefront)	Yes	4MB	32	Reverb/Echo	5 1/2 X 3 1/2 X <1/2	Toward sound card	$159

*General MIDI

**Approximate

*** Some daughter cards have components that face the sound card, often creating installation difficulties. If you purchase a card with components facing *toward* the sound card, special adapters may be required to mount the card properly. The ALR WAVE EXPRESS is the only daughter card that comes with such adapters.

†Except no pan Channel 10

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Blaster" or "General MIDI" in the music card selection menu. If your daughtercard is on the list, choose it. If it is not, don't fret—just choose "Wave Blaster" or General MIDI. It's that simple.

Well, *almost* that simple. When some of the daughtercards were installed, they came very close to physical contact with the card in the expansion slot next to the sound card. Some of the daughtercards have components that face the sound card and others have components that face away. The Sound Galaxy in particular has a ROM chip that greatly increases the silhouette of the card. To mount it, I had to put my sound card in the slot that put the Sound Galaxy away from other computer cards. While this posed no problems and worked just fine, it took longer. The ALR Kurzweil Express came with an extender that would offset the daughtercard further from the sound card in case the daughtercard components were too close to the sound card. I didn't have to use the extender, but if I had, there would have been the same problem of not having room in an interior card slot.

When you go to buy a daughtercard, take your sound card with you to make sure that they will fit together without metallic components touching. Don't assume that they will both fit into the slot you normally use for your sound card, either. While you are at the store, you might try fitting both the sound card and the daughtercard into a computer to see if they fit in a slot similar to the one you will use in your own computer. You might also try to get the store to allow you to listen to samples of the daughtercards available. Also, be careful when you buy a regular sound card. Be sure that you buy a sound card with a "Wave Blaster" compatible connector. This type of sound card does not require a Wave Blaster, but will work with any daughtercard mentioned in this article. Going this route will ensure that you can upgrade the synthesizer portion of your sound card with minimal effort.

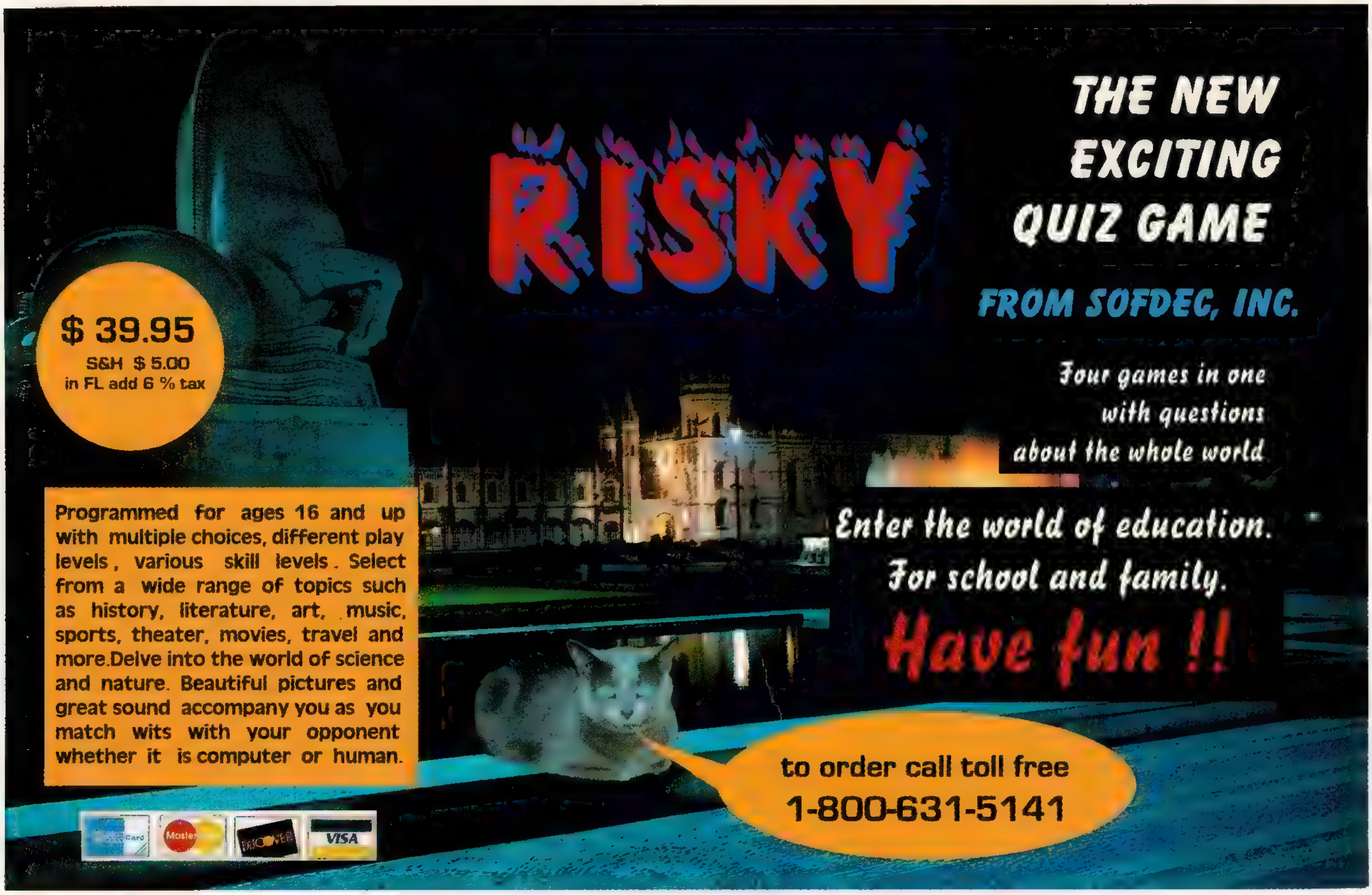
THE FINAL NOTE

It is my sincere hope that the manufacturers of these cards will continue to improve/upgrade the patches and compatibility with regard to dynamics built into the patches. None of the composers with which I have spoken want cards that sound the same, but they do want cards that match patch dynamics. The most beautiful patches can sound awful with improper dynamics. Even a live orchestra that does not follow the dynamics of a composition will sound bad.

It is good to see that there is some real competition here, and game players will benefit from this. Compared to FM synthesis, any of these cards is a major improvement, but there are some that are clearly better than others. Do not rely solely upon the information presented in this article. If you have access to one of the information services (CompuServe, Prodigy, AOL, etc.) or the Internet, look for the sound card discussion areas and see what many others have to recommend. Buy what you like—and do it soon so you can hear the sparkle, punch and CD audio quality of today's game music.

I would like to thank Margaret Prince, Rob Prince, and my fellow composers, Rob Wallace, George Sanger and Don Griffin for their help with this article.

Bobby Prince is a composer and sound designer who has music and effects in many shareware and commercial games. You have heard his music (and sometimes his yells, grunts and groans) in such games as Wolfenstein and DOOM. You can write to him at his e-mail address: SDSV97A@prodigy.com. ◆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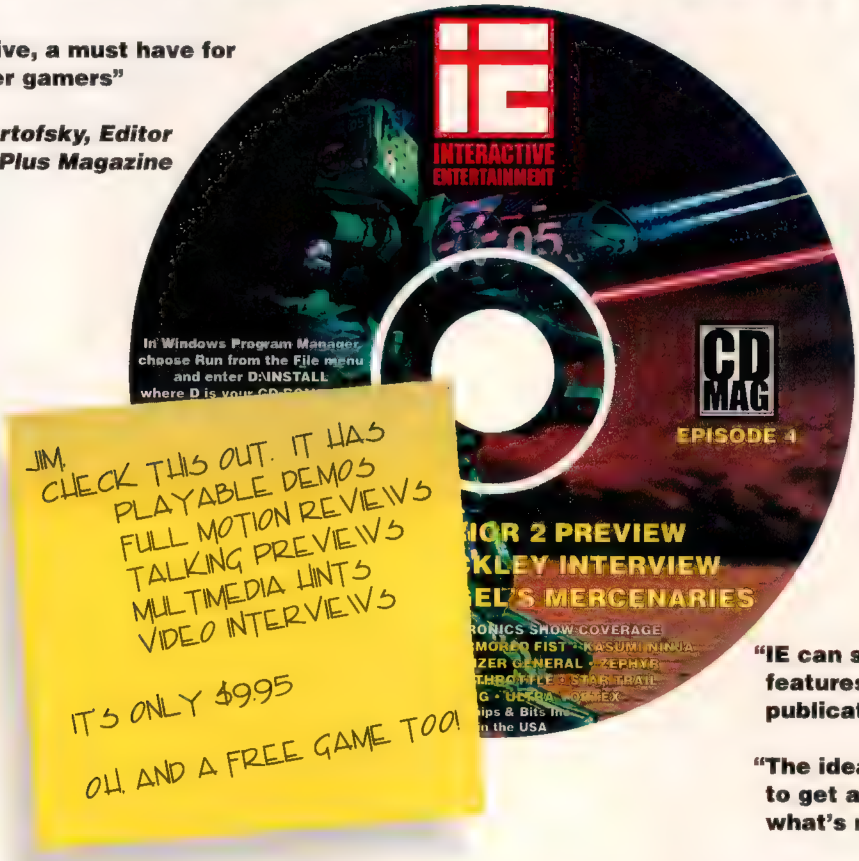
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In Search Of The Ultimate... Control Device

A Round Up Of Joysticks, Wheels, Pedals and Oddities That Will Improve Your Grip On Digital Reality

by Gordon Goble

Once upon a time, a very bright person realized that a computer keyboard, while being *the* device for typing words and keying numbers, was not an ideal input device for the exploding gaming market. Thus was born the joystick.

Small, almost inconspicuous, the early joystick (*dwarfis controllicus*) crawled from the primordial goo. Bearing resemblance to today's gargantuan technological marvels in name and purpose only, these tiny-handled objects nevertheless offered fingertip control, an unparalleled range of movement, and made wonderful ergonomic sense when compared to the alternative. Yet no sooner had the joystick made an appearance than its evolution would begin.

In short order, *dwarfis controllicus* developed a button, then two, then began to swell in size. In modern times, *controllicus maximus* has taken on a number of shapes and forms, and sometimes doesn't look like a joystick at all. Mutant strains such as flight yokes, steering wheels, gamepads, and pedals were natural branches of its evolution, and joysticks are now merely a small portion of the "control device" family tree. Programmable control devices, joysticks layered in buttons and switches, thundering seats, joystick placement apparatus, and various forms of somewhat curious gaming apparel are some current offshoots.

In this article, we'll look at a number of current offerings, beginning with straightforward joysticks, then blossoming into complex joysticks and command centers, gamepads, wheels and yokes, all of which promise to put you in control of your gaming life.

Advanced Gravis

Gravis Analog Pro

The Analog Pro from Gravis consists of a conventional, yet undersized stick mounted on a flat black base. To Gravis' credit, they are one of a few manufacturers to pad their sticks, and that's a nice touch over the long haul. But considering the recent strides made in the joystick biz, it seems odd that the Analog Pro has developed very little from the original Analog. Now sporting two fire buttons atop the handle instead of one, two more on the base, and an index trigger on the front of the stick, all the components are there, yet the response and feel of the product remains unchanged. At one time the Rolls Royce of a thin market, the latest Gravis joystick now feels a trifle "small" and has very little throw when compared with other products.

It is very important to keep the Analog Pro in calibration as it is difficult to reset, necessitating the use of a tiny screwdriver (included) and a lot of patience to re-center the potentiometers. The base buttons have swappable functions, and a tension adjuster allows the stick to become free floating if needed. An adequate throttle wheel is located on the side of the unit.

The Analog Pro works very well with first person adventure games, and it's a decent entry-level stick, yet remains a little high priced for my liking. Price: $34.95.

CH Products

CH Flightstick

The CH Products Flightstick has been considered the pinnacle of joysticks for several years now. From first look to final analysis, this baby is a quality product, and that's probably why so many software houses use it in their testing and development. The large, comfortable black stick that has become a CH trademark features two responsive and precise fire buttons, while a smooth rotary throttle and X and Y axis trim wheels protrude slightly from the surface of its large gray base. The

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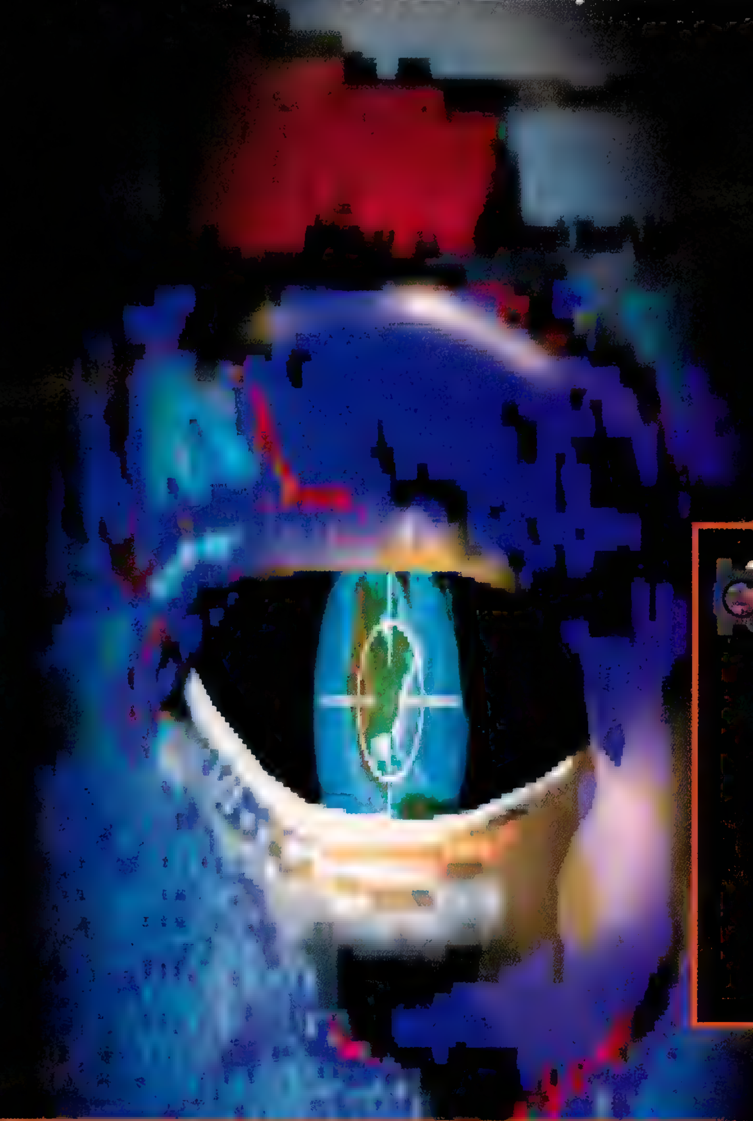

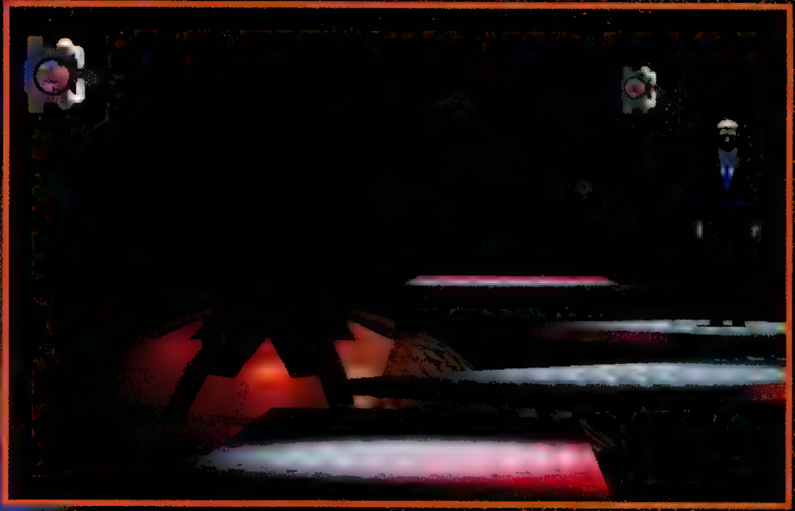

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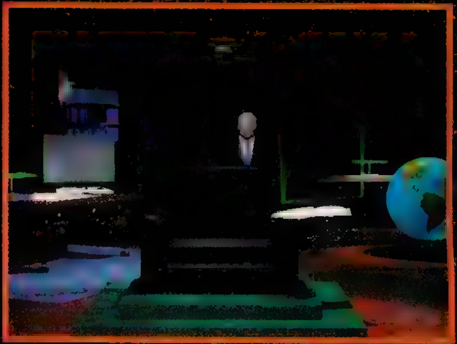

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Flightstick stick is mounted in a rectangular box within the base, and this gives an accurate four corners for calibration purposes. I've been using the same Flightstick for nearly three years and have had nary a hassle. It offers precise, unwavering control for the most exacting of flight and racing sims, yet works just fine in practically any application.

With only two on-board switches, keyboard mapping is not possible with the Flightstick (although some games allow for a swapping of button/trigger functions), but if a straight-forward joystick will do, the Flightstick has few peers. Amazingly, the Flightstick is priced on par with a multitude of lesser grade joysticks, and this combination of quality, price and versatility is hard to beat. A Best Buy. Price: $69.95.

CH Products

CH Flightstick Pro

The Pro looks and behaves in much the same manner as the CH Flightstick, with a few important amendments. The stick itself has grown some from the inaugural Flightstick, and includes four fire buttons (index finger in the front, and three others on the rear of its widened head). Another addition is a "coolie hat" thumb switch for easy manipulation of external views or anything else that a particular software package might support. Note that the Flightstick Pro button layout is not customizable, and features such as the coolie hat must be supported by a game in order to work. Later we'll be looking at "smart" sticks that permit individual tailoring of the functions normally handled by the keyboard.

Flightstick Pro

The Flightstick Pro features a smooth throttle wheel and two very accurate potentiometer adjusters (which become trim adjusters for flight sims) built onto its 6" x 6" gray base. Software is included in the package for calibration, testing, and special drivers for Microsoft's Flight Simulator 5.

The Flightstick Pro kept me "on the needles" in Flight Simulator 5, and tore its way through enemy squadrons in Falcon 3.0. It performed admirably in IndyCar Racing and NHL Hockey 95, yet these two programs exposed one tiny drawback related to the configuration on the stick head. The new buttons and wider head are a definite step forward when dealing with multiple manipulations, but for games in which just two buttons are needed, the Pro's predecessor (the Flightstick) with its smaller single button head and index trigger more comfortably fits the hand over the long haul. Fans of first-person action and adventure games may want to look elsewhere, as this, and most other analog joysticks, provide a somewhat slower response time than digital control devices. Price: $99.95.

Jetstick

CH Products

Jetstick

Like Miller, Bud, and Coors, CH Products has created its own "Lite" alternative, the Jetstick. A recent addition to the CH line of peripherals, the Jetstick is a smaller, inexpensive, entry-level companion to this company's Flightstick and Flightstick Pro. It was also one of the more pleasant surprises to crop up during research for this article.

The Jetstick was surprising because, in the world of joysticks, the term "entry level" is often associated with the term "it stinks," but not so with the Jetstick. It is similar to the excellent Flightstick in many ways, but with a much smaller base, a larger thumb button (something that should be incorporated into the entire CH joystick line), and no throttle. Otherwise, the action is smooth and seamless. During IndyCar testing I realized that I actually preferred the feel and response of the Jetstick to its bulkier brethren!

The Jetstick is noticeably different from most other joysticks in two areas: reduced handle tension, and a much subtler "click" as the stick passes through its centered position. Even with its reduced base size, the Jetstick remained in place on my desktop during all my "yank and crank" sorties, and overall, I just can't seem to find a negative criticism. Price: $39.95.

CH Products

Pro Pedals

Finally, we have a few manufacturers peddling their pedals rather than just rumoring their release. CH Products has officially joined the pedal proliferation with the November release of their Pro Pedals, foot controllers that mimic both the swiveling action of acceleration and braking in auto racing sims, and fore/aft rudder motion for airborne adventures.

The Pro Pedals unit consists of a 12" x 14" x 1" base to which two foot-encompassing nine-inch pedals are mounted. The unit is subtle and attractive, and provides both pilots and drivers with the chance to finally use all four major appendages. In testing, the Pro Pedals provided excellent feedback and functionality for both Falcon 3.0, NASCAR, and IndyCar, although it admittedly took this uncoordinated reviewer some time to become acclimated to a floor-mounted control device. Unfortunately, the Pro Pedal base had a tendency to inch across my shag carpeting (while the attached rubber feet will prevent this unwanted movement on bare floors). Also, because the pedals themselves only semi-lock into place for driving games, occasionally, when under pressure, they tend to slide forward across the base, essentially dupli-

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cating the rudder action. This is marginally annoying, yet infrequent and not really a concern once a feel for the thing has been acquired.

Connecting directly to the joystick port, the CD Pro Pedals feature a seven-foot cable with two adapters, one for a joystick or similar device, and the other for aircraft toe-brake implementation as gamecard and software technology rise to the occasion. Criticisms aside, the CH Pro Pedals get an early stamp of approval. Price: $139.95.

STD Entertainment

PC Raider

The PC Raider is the entry level model of a trio of new sticks from STD Entertainment, combining some decent features and a low price with a somewhat "dated" feel.

Futuristic in appearance, the PC Raider consists of a large, contoured, dual-buttoned handle mounted on a space-conserving base that uses four suction cups on its underbelly to maintain desktop stability. Like most peripherals using suction cups, the PC Raider won't become firmly affixed, but natural hand pressure should provide adequate adhesion. Buttons are solid and move fluidly, providing good tactile and loud audible feedback. The handle provides little range of movement, and that can be good or bad, depending on the application, but suffice it to say that one may veer sharply off course in the air or on the road with very little effort. One may then deduce that the PC Raider is more suited to arcade-type action, and the inclusion of two auto-fire switches seems to bear that out.

A lack of four discernible corners in the PC Raider's swiveling action can mean uneven calibration and a difficulty in knowing where forward motion ends and sideways movement begins when in the heat of battle. X and Y axis trimmers take the form of two very firm side-mounted sliding switches that will *never, ever* be triggered by accident. Price: $14.95.

STD Entertainment

PC Commander

Looks, feels and reacts in identical fashion as STD's PC Raider, and with good reason—it's the same stick! Well, almost. The PC Commander is the PC Raider with the addition of something STD calls "Mega Zoom."

Mega Zoom is neither "Mega," nor a viewing magnification feature, but a software utility that "fine tunes the stick to match hardware and software specifications." It is a combination of calibration software and two mini-wheels on the underside of the joystick base that lets the user adjust the working range of the stick. Mega Zoom is a thoughtful idea considering today's wide range of entertainment applications, but whether it means the PC Commander is worth the extra bucks over the PC Raider is questionable. Price: $24.95.

PC Commander

STD Entertainment

PC Optix

By far the nicest of the three STD joysticks currently available, the PC Optix is, technically and ergonomically, an entirely different animal.

In a radical departure from all other joysticks in this review, the PC Optix uses a non-contact optical sensor to detect stick movement rather than the traditional variable resistor. This translates into extended life and, supposedly, more stable performance than other joysticks. As our deadline precluded months of rigorous testing, neither claim could be verified, although they do make sense.

The PC Optix' large contoured handle includes four fire buttons: trigger, split thumb button, and an extra mini-thumb button. In Falcon 3.0, that means weapon firing, weapon selection, air brakes, and switching from air-air to air-ground weapons commands are now all on the stick, and not on the keyboard. Other games will offer other default function mapping, if the extra buttons are program-supported.

The PC Optix' cup overflows with additional features, including a digital/analog selection switch mounted on the underside of the base, a flat-mounted throttle wheel (with a much appreciated on/off setting), X and Y axis trim controls, Mega Zoom (see PC Commander), dual auto-fire switches, and a four-cornered stick mount. Stick tension is heavy and movement a bit noisy, but these minor quibbles aside, the PC Optix is a fully loaded package. Price: $59.95.

Logitech

Wingman

With an esthetically awesome design and superb feel, Logitech's Wingman is a serious contender to the long-held CH Products joystick throne.

Built like a brick stickhouse, the Wingman is heavy-duty from the ground up. From its weighty sloping hexagonal base to its thick, beautifully contoured handle, one gets the immediate impression that the folks in the Logitech art room spent a long time with the tech department, who then went and spent an equally lengthy time with the construction crew. The results speak for themselves.

From the ultra-fluid and responsive stick action to the smooth throttle wheel, the Wingman is perfect for flight sims, and does a credible job on the road as well. The two fire buttons are firm and audible, the stick gives noiseless, equal tension in all directions, and in Falcon testing, an admirable gun hit/miss ratio certainly means something.

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PC *STRATEGY* PC *ACTION* PC *ADVENTURE*

The sculpted handle won't feel so great if you're left-handed, and one may want to look elsewhere for quick reflex arcade-style games, but for the serious right-handed simmer who doesn't require a slew of on-stick buttons and switches, the Wingman sticks it to the competition. Price: $39.95.

Logitech

Wingman Extreme

Take the capabilities of the CH Flightstick Pro, the physical and ergonomic delights of Logitech's Wingman, add some flash, and you end up with one of the nicest joysticks you'll ever have the pleasure to use. Similar in appearance to its little brother, the Wingman Extreme differs in that it has four fire buttons, a coolie hat, a rubber "boot" over the handle-base joint, and a handle that fits like a glove. The Wingman Extreme was a pure joy in both Falcon 3.0 and Flight Simulator, and performed like a winner in NASCAR (although, with quite a bit of tension, the arm will tend to tire a bit after a couple of hundred short oval laps).

The Wingman Extreme is compatible with the Thrustmaster Pro Flight Control System interface, an option in many high-end games. Personally, I can see myself in this joystick. Price: $69.95.

Suncom Technologies

FX 2000

A two-buttoned joystick with variable throttle wheel, autofire capabilities, a signal selector switch, and X/Y axis trimmers, the FX 2000 offers a smallish (almost digital) range of movement in an interesting ergonomic wrapping.

Interesting? How about a swiveling handle that can be pulled up, turned and then locked into a different orientation? How about a symmetrically contoured handle and base that together coddle the hand *and* gives equal access for left-handed gamers? How about a rounded, arched base that feels good even when hand-held? And how about those suction cups that really stick? Indeed, some appealing qualities, yet in actual gameplay, the FX 2000 left me wanting.

Primarily, I wanted more stick movement: there just isn't enough for the subtlety required in today's top-notch simulations. That, and a noisy, tinny feel to the index trigger button had me checking elsewhere for the ideal World Circuit or 1942: Pacific Air War control device. Price: $39.99

Suncom Technologies

FlightMAX

The FlightMAX offers a bevy of amenities supporting a decent two button stick. Its features include dual sliding throttle controls (on either side of the stick), a throttle selector switch that activates either or both, onboard sliding rudder control, X and Y axis trimmers, and a signal selector switch for swapping of fire button functions. Both selector switches are hidden within a smoked plastic compartment lid so as not to be activated in error, and for what it's worth, I prefer these sliding throttles and rudder switches as they are more accurately centerable.

The very thick FlightMAX handle sits in a rounded opening, yet offers four corners for precise calibration. Suncom has incorporated something they call "Saturn Ring" direct drive technology into the base of the handle, and this supposedly equalizes tension in all directions (there is a lot of tension here, and it did appear uniform during testing). Fire buttons are not overly smooth in action, but the thumb button especially is very comfortable. The FlightMAX color scheme (light on dark gray) is not the most pleasing aspect of the unit, but the red trigger certainly stands out visually (like the rear end of a baboon in heat). Overall, an ample, hefty control device for most any simulation. Price: $49.95.

ThrustMaster

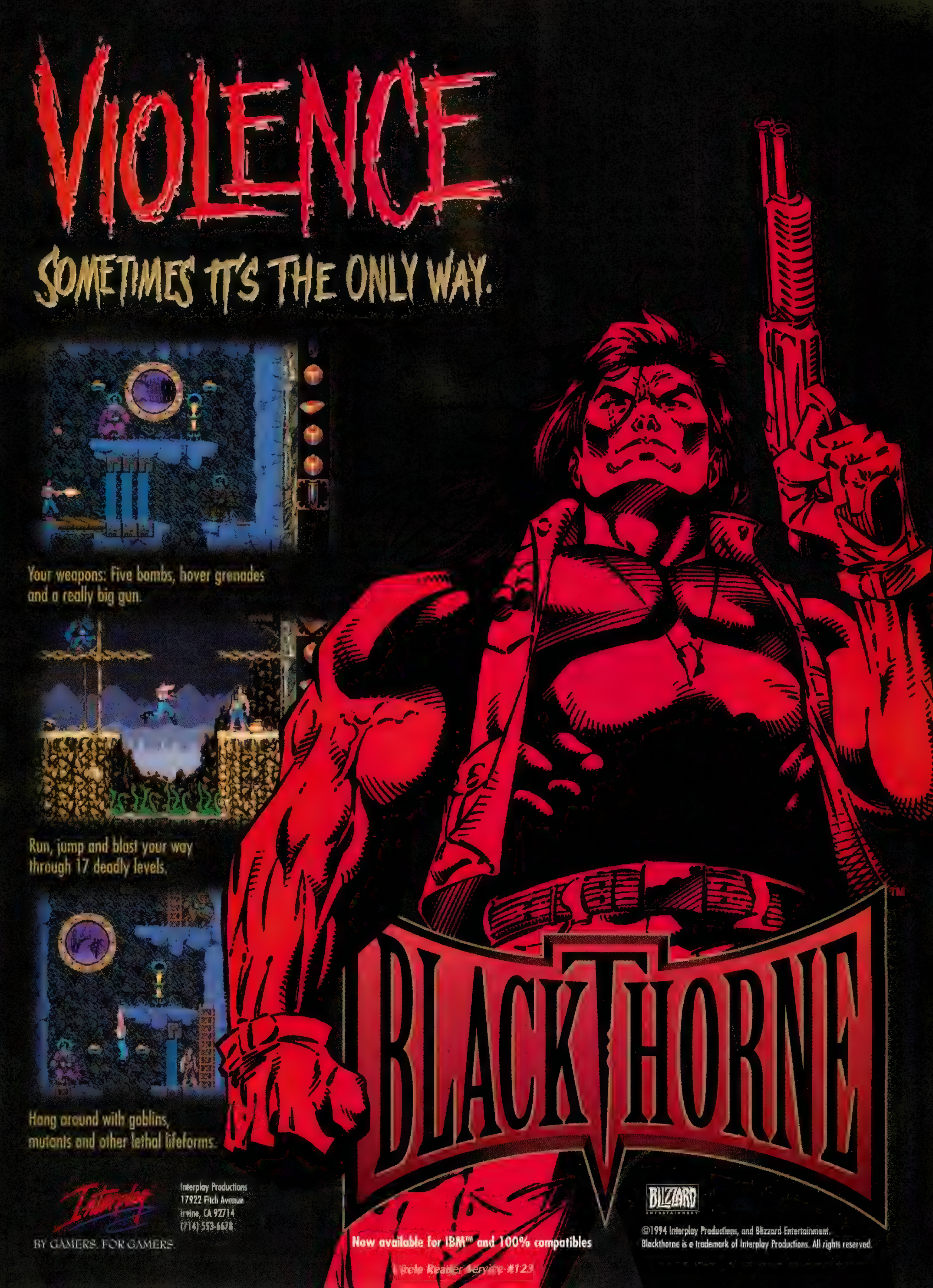
Pro Flight Control System

The beast of all joysticks, the Pro Flight Control System will allow you to not only play your favorite aircraft games, but get a full upper body and arm workout at the same time. This thing is more tension-filled than the Iraq-Kuwait border.

A black stick and metal base with "stamped-on" lettering gives the Pro Flight Control System a none-too-subtle military appearance. Despite the extravagant name tag, the PFCS is a joystick, albeit with four buttons and a four-position "coolie hat" switch, all strategically mounted on the jumbo stick in much the same manner as real-life jet fighter controls. This is not a programmable stick, therefore the extra buttons and coolie hat will work only with games that specifically support such features (including Falcon 3.02, MiG-29, F-15 Strike Eagle, Aces of the Pacific, Strike Commander and most helicopter sims).

Pro Flight Control System

The PFCS provides accurate feedback and, as with most joystick units of this caliber, the entire unit will remain quite immobile on the desktop (although my unit has a slightly uneven base and rocked a bit on the desktop while being pushed and tugged about). Not exactly stylish (the thing looks like it was cut from a fighter cockpit), the PFCS nevertheless oozes realism and is built for the long haul. Price: $149.95.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THRUSTMASTER

F-16 FLCS Flight Control System

Yet another entry into the airborne world of peripherals from those jet jocks at Thrustmaster, the F-16 FLCS is truly the "everything but the kitchen sink" joystick. Oh, wait a second, I think there's a sink here somewhere.

This thing is impressive! An accurate representation of the control stick currently used on the F-16 model Falcon fighter, the F-16 FLCS is literally littered with buttons, switches, and rockers for *every* finger, with a coolie hat thrown in for good measure. The unit is completely programmable (plugging into both the keyboard and joystick receptacles—the keyboard then plugs into *it*), and this means virtually any keyboard function including macros may now be controlled by any button or switch on the stick. The F-16 FLCS has an onboard memory chip that will remember all the latest programmed settings for next time.

F-16 FLCS Flight Control System

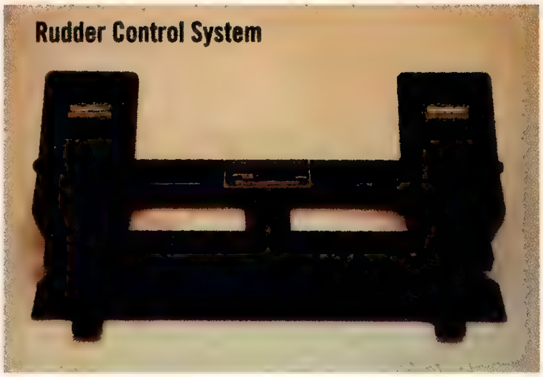
The F-16 FLCS stick/base meeting point is housed in a rubber cover, much like a car gearshift lever and its real life counterpart. Stick action is smooth and realistic (although never having flown an F-16, I can't say this with authority), yet is somewhat straining, again mimicking real life.

The ultimate fighter sim setup would include this unit and the WEAPONS CONTROL SYSTEM which comes with an excellent throttle control. This product is really not meant for anything else but digital airborne dramas. The F-16 FLCS comes packed with lots of appropriate setup and configuration software, and it really has no equal for flying fanatics. Price: $199.95.

THRUSTMASTER

Rudder Control System

Without doubt, it is an empowering sensation to smoothly and accurately control the actions of one's aircraft rudder with real pedals, leaving one's hands free for more important manipulations. The Thrustmaster RUDDER CONTROL SYSTEM is a specialized control device designed for just such a task, and it does it very well. Modeled in the same fashion as the real McCoy, the RCS consists of a 20" x 10" base with a horizontally pivoting pedal unit attached to its topside. Situated about 16 inches apart (center to center), the pedals are comfortably large with a heel guard to prevent slipping feet. Pedal motion is steady and smooth, and the unit features an automatic centering routine. Made of tough ABS plastic and aluminum, the RCS seems built to last through the most taxing sorties.


Rudder Control System

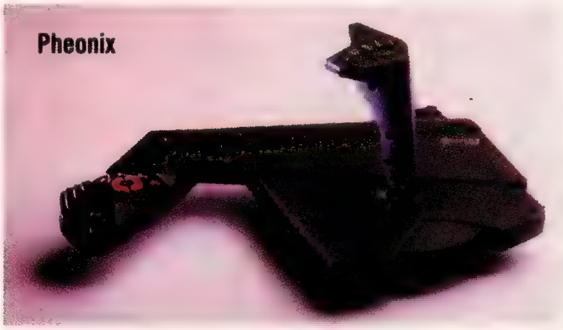
On the downside, the RCS is not designed for future implementation of toe brakes (see the CH PRO PEDAL review). Also, the potentiometer and attached wiring sit recessed yet exposed on the underside of the unit, ready for the wear and tear of shag carpeting. Overall, though, the jet black PCS is a fitting complement to the entire line of Thrustmaster aircraft control devices. Price: $149.95.

ADVANCED GRAVIS

Phoenix

Advanced Gravis has moved into a new realm with the release of the PHOENIX, the most outrageous, versatile, stand-alone control device ever built.

What can the PHOENIX do? A more appropriate question may be "What can't it do?" Physically, it's difficult to describe, but a slightly sloped, low profile, 8" x 8" base complete with an *eight* button stick is offset with a button-filled extension that protrudes from a front corner, and ends in a button-laden, mouse-shaped, throttle/rudder/gamepad-type control which turns and slides independently of the base. Got all that?


Pheonix

The whole thing looks both futuristic and overwhelming, and in use, the PHOENIX reflects those qualities. Connecting to both the keyboard and joystick receptacles, the unit may be customized to activate any keyboard function with any one of its controls, and it offers complete versatility for any type of software. Buttons and controls are arranged in groups and are different sizes and shapes, so commands may be issued without taking your eyes off the screen. With right hand gripping the stick, and left hand pulling and turning the throttle/rudder control (which doesn't *have* to be the throttle/rudder control!), and a plethora of buttons in between, there really is no limit to the possibilities.

The PHOENIX stick is quite nice (better than previous Gravis offerings), with variable tension adjustments in each direction, and at highest tension, the stick magically acquires four corners for easy calibration. Windows-like software is included, with a graphical interface showing a top view of the PHOENIX. Although the PHOENIX ships with pre-set configurations for today's most popular programs, users need only point and click on the control of their choice to assign a different function.

Gravis has jumped into uncharted waters with their latest release, and have created a hell of a splash in doing so. Price: $149.95.

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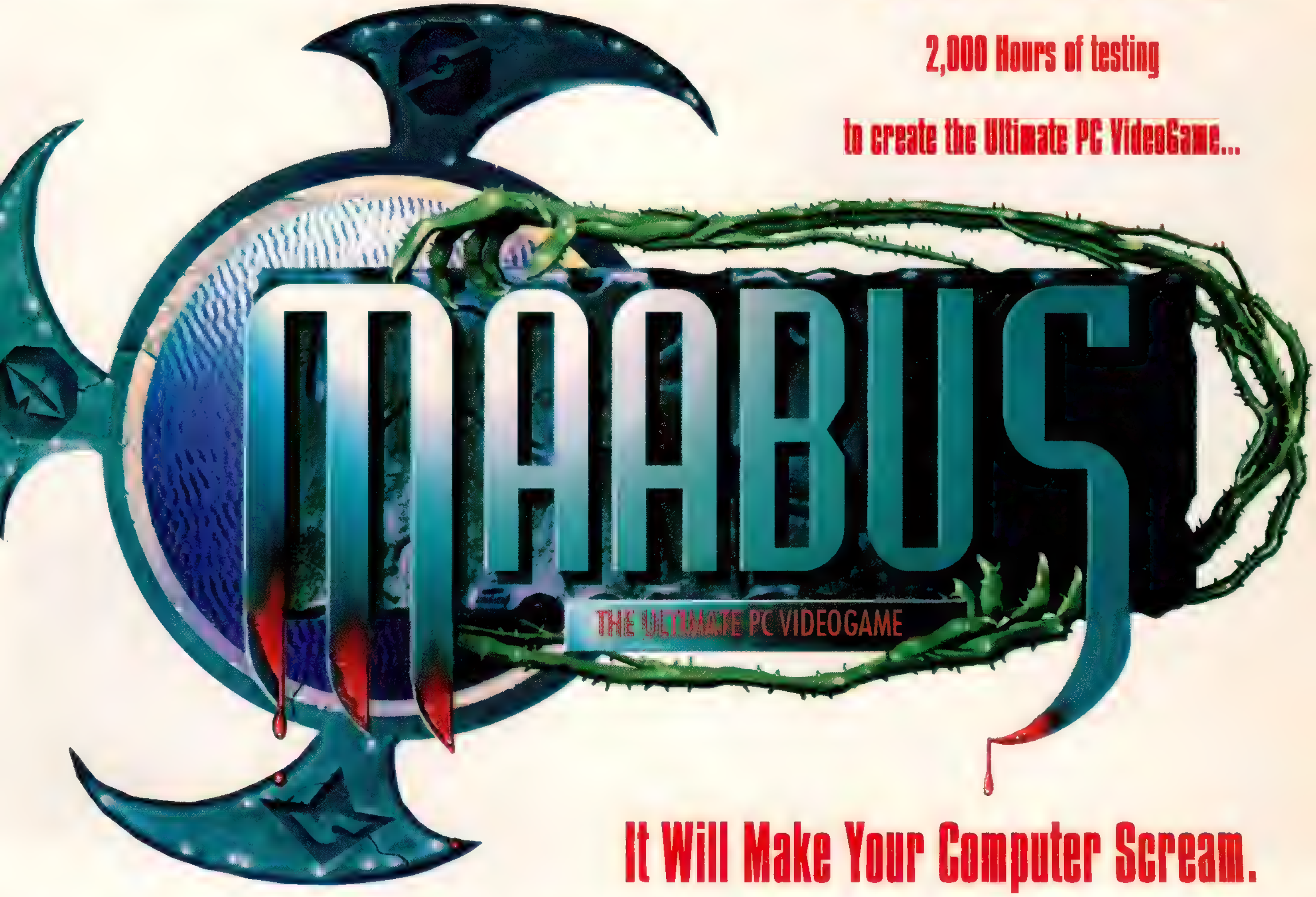

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Advanced Gravis

Gravis GamePad

Not quite the technological marvel of the Phoenix, the Gravis GamePad is instead a tiny, handheld combination of Nintendo-style controller and joystick. Four fire buttons combine with a *removable* one inch joystick handle to supply just about all the options and versatility one could ever hope to expect in such a small package.

The unit can be switched from a right- to left-handed set-up without fuss, and although it won't give nearly the feel or response of a full size stick, it is the perfect device for stealthy office use and/or budget-conscious shoppers. The GamePad is best suited for adventure and arcade style games, although it worked surprisingly well with flight and racing simulations. Inexpensive and obviously portable, the GamePad is a neat product that might find a home in the hands of a sports or action gamer. Price: $24.95.

GamePad
GRAVIS

STD Entertainment

PC Propad

Similar in style and application to the Gravis Gamepad, the PC Propad is a handheld digital control device aimed mainly at adventure and arcade fans. The PC Propad features an eight-way Nintendo-type movement controller and two fire buttons (with dual speed, independent auto-fire settings that permit hands-free operation) in a neat, eyeglass-shaped pad. Price: $19.95.

AITech

Wireless Bandit

The Wireless Bandit is similar in style and performance to the pair of gamepads reviewed above, with one important exception—this pad is wireless. While that means the purchase of two "AAA" batteries every time the handheld unit loses its juice, the freedom from wires, particularly in a hand-held unit, is something to be savored. The unit features a digital eight-way controller, two manual fire buttons and two of the turbo variety, allowing for faster shooting in most arcade-style games. Sadly, the Gravis idea of a mini joystick (which makes simulations such as World Circuit almost playable) has not been incorporated here or in the previously mentioned PC Propad. Each Wireless Bandit package contains two handheld controllers and one infrared receiver that seems to pick up signals omni-directionally from as far as 20 feet away. Price: $59.95.

Suncom Technologies

G-Force

The G-Force is a visually striking, desk-mounted flight yoke that doubles as a driving controller. Featuring a unique, swiveling, fore/aft axis and "U"-shaped yoke handle that pivots at the base and arcs from side to side, the G-Force offers precise control and a short-n-sweet turning radius. It is perfectly suited to low-key flight simulations and the upper echelon of auto racing sims, although it is perhaps a bit too fragile for the beating applied during "yank and crank" air combat. The attractive unit is mounted to the desktop via four oversized suction cups or deskfront clamps.

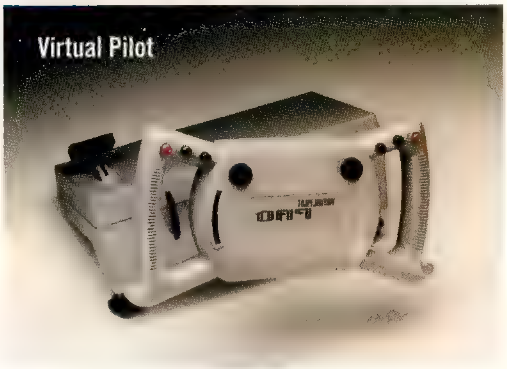
The G-Force comes equipped with large, comfortable thumb and trigger buttons at the tops of each yoke handle, and a column switch that reverses the signals going to each pair of buttons. Smartly configured trim adjusters are present for elevator/rudder control in flight games, and a column lock-out feature is provided to prevent fore and aft movement when racing automobiles. This is a laudable feature that I found unnecessary, as the rocking motion for analog throttle and brakes feels quite natural and smooth. One of the best devices available for MS Flight Simulator and racing sims. Price: $89.99.

CH Products

Virtual Pilot

The Virtual Pilot is a desk-mounted flight controller that features a sliding shaft and hourglass-shaped yoke. A T-handled throttle, easily manipulated trim adjusters, and well placed fire buttons make the Virtual Pilot a product to remember when looking for flight and auto racing control devices.

Like the G-Force, the Virtual Pilot has a limited turning radius which makes it very good for precision flight sims and mimics closely a real small plane yoke, but is questionable when put in control of a streaking fighter jet. Additionally, the sliding fore/aft movement may be too cumbersome for analog control of auto racing simulations. A mild detraction might be the angle and position of the unit, which sits flush and parallel to one's computer desk or table. The Virtual Pilot clamps itself to the table (and does not work well with beveled or rounded edges, much like the G-Force), but these criticisms aside, this is a quality product at a reasonable price. Price: $109.95.



Wizard Racing

The Pro Control Racing Wheel

The Pro Control Racing Wheel is one of a precious few wheeled control devices currently in the marketplace, and contin-

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ues an ongoing thrust toward increased realism in all aspects of the simulation environment.

The Pro Control Wheel has been built around an authentic Go-Kart steering wheel and shaft, which have been set at a comfortable driving angle into a wedge-shaped, black plastic housing. On the back side of the padded wheel are four fingertip switches, two on each side, that accommodate throttle, brake, and gear change control. Aside from a serial connector and on/off switch on the rear of the housing, the rest of the unit is free of gadgetry. Weighted and equipped with non-skid rubber feet, the Pro Control Wheel does not require a table clamp to lock it in place. Wheel action features graduated resistance, and successfully mimics the motion and feel of the real thing.

The Pro Control Wheel comes with a utility disk packed with car set-up tips, graphic upgrades, a screen capture program, and more fun stuff.

Additionally, Wizard's plans for '95 include the release of a "strictly for driving" pedal unit in the first quarter of the new year. The Pro Control Racing Pedals will contain a number of real life competition parts and promise to look and perform like they've been "ripped from a real race car." Demented digital driving demons take note. Price: $129.95.

ThrustMaster

Formula T1

From Thrustmaster, the company that always seems to see the need for heightened realism in gaming peripherals, comes a combination steering wheel, stick shift, and gas/brake pedals—the Formula T1.

Although none of the separate elements are without slight flaws, the complete Formula T1 package is just that—a complete driving package, one of few currently on the market. Once assembled (a daunting task considering a mounting technique involving suction cups, Velcro strips and a dual joystick port), the Formula T1 cockpit is a formidable product.

Formula T1

Mounted on a black metal console, the Formula T1 wheel is a bit thin for my liking, but operates smoothly. Unfortunately, there is a little looseness in its action, and pinpoint accuracy is not its strong suit. The gearshift lever is mounted alongside the wheel, and its close proximity permits quick shifting. The Formula T1 pedals have a strange yet functional design incorporating rollers at the ends of levers, and although they work as advertised, are perhaps set too close together for the long haul.

I've been brought up and depended on joystick control for my driving efforts over these many years, and it will take a pretty special product to convince me otherwise. The Formula T1 came close, but was edged out in a tight race. Price: $179.95.

Weapons Control System Mark II

ThrustMaster

Weapons Control System Mark II

So, who needs a keyboard anymore? Built to compliment the Thrustmaster F-16 FLCS, the Weapons Control System Mark II is essentially a rounded, black plastic ball built onto a shortened joystick handle. The unit features gobs of buttons and switches on its head and base that may be programmed to duplicate most any keyboard stroke available to modern desk-based pilots. The feel is ergonomically pleasing, while the buttons and analog throttle are both responsive and placed to get the most input possible out of any human hand.

When run in conjunction with the F-16 FLCS stick, jet fighter games take on a whole new dimension. The HOTAS (Hands On Throttle And Stick) principle is used in real jet fighters for a reason, and serious fighter sim pilots with a little cash to burn will be astounded by the realism.

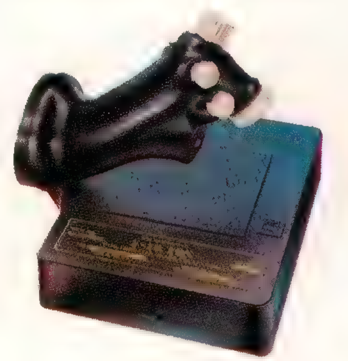
While the WCS is designed primarily for air combat simulations, practically any game (or business application for that matter) can be mapped into the unit. And when the power has been turned off, the WCS sports a non-volatile memory chip that will retain any single program that has been downloaded into it. Recommended for the ultimate in air combat realism. Price: $149.95.

ThrustMaster

F16 TQS Throttle Quadrant System

The successor to the Weapons Control System MARK II, the F16 TQS is to the MARK II, what the F-16 FLCS joystick is to Thrustmaster's original line of joysticks—an amazing evolution in air combat simulation controls. As we went to press, the product was still being tweaked, but should be available for limited distribution by mid-December.

F16 TQS Throttle Quadrant System



Modeled after the real throttle quadrant in an F-16, the F16 TQS will be fully programmable like the MARK II and will work in concert with (require) the F-16 FLCS. This baby even has a trackball that works with air combat games which have a mouse cursor on the screen, boasts radar and antenna switches, uses a throttle tension adjustment wheel, and is loaded with enough knobs, switches, and buttons to fulfill every sim head's air combat dreams. Price: $179.95 (projected).

Multimedia? Right, I'm excited about video the SIZE of a postage stamp that moves like a mailman in a COMA.
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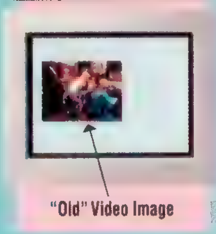
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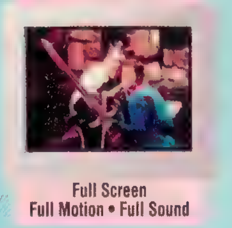
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Logitech

Cyberman 3D Controller

You have to admire companies that take a whole new outlook on things, and with the Cyberman control device, Logitech proves they won't stand still. Designed primarily as a method of controlling 3D games, the Cyberman consists of a mouse-shaped appendage attached above an aerodynamic plastic base. The "flying mouse" swivels, arcs, turns and moves from side to side, forward and back, and up and down, giving the illusion that it is free floating.

Cyberman 3D Controller

It also provides tactile feedback in the form of a vibrating action produced from within the unit. Depending upon each particular game, the gamer will feel pulses when shot, hit, kicked, blown away, or otherwise abused.

The idea is great, but in execution, the Cyberman is not easy to operate. Not accurate enough for a number of aircraft and racing simulations, and just plain hard to get familiar with, the Cyberman may be simply far too specialized for anyone but complete space cadets. Cyberman also has an annoying tendency to lift from the table as it is tugged upwards. However, with some revisions, and considering the 3D way that some games are heading, Logitech's bold adventure to where no device has gone before may have a future in the future. Price: $129.00.

Duggan Dezign, Inc.

Flight Stand

The Flight Stand is a tough plastic joystick stand that consists of three ingredients: a vertical shaft, a wide flat base, and a wide top platform. One sits upon the wide flat base with the shaft protruding upwards between the legs, and affixes a joystick to the top platform with supplied Velcro strips. As if in our most macho fantasies, the unit stands about eight inches high, and it bends just a bit as the joystick is gripped and moved about in a strenuous fashion.

The Flight Stand manages to kill two digital birds with a single stone. Firstly, it frees up that oh-so-valuable desktop space, and secondly, it places the joystick within easy reach. Flat-bottomed joysticks work best, as there is more plastic to Velcro, yet joysticks with suction cups, if placed at the right angle (and *not* affixed to the tray), will work as well. Unfortunately, only one set of Velcro strips are included with the package, and just one stick may be rigged unless more Velcro is purchased. Also, once Velcro has been affixed to the base of a stick with short legs (as most have), that stick just won't sit still for you on a desktop unless the offending strip is removed. Price: $24.95.

Home Base Products

Pilot Control Stand

For those gamers in this technologically advanced time that can still handle actually using the keyboard to activate keyboard functions, and for those who prefer their joystick to be a tad more up close and personal, Home Base Products may have a handy accessory.

The Pilot Control Stand is a keyboard and joystick holder that puts all the action at your fingertips. The dual purpose unit elevates and vertically angles the keyboard, while an attached mini-tray allows the joystick to sit right up front and off the tabletop at any pre-set position. The unit lends a very natural feel after some acclimatization, and provides a perfect fit for a CH Flightstick, and nearly a tailor-made fit for the Thrustmaster Pro Flight Control System and Gravis Analog Pro.

On the downside, wheels and flight yokes just won't fit within the boundaries of the raised edges of the tray, nor will products such as the Logitech Wingman, Suncom FlightMAX, or Thrustmaster F-16 FLCS. Also, the Pilot Control Stand won't attach to desktops greater than two inches thick. Price: $24.95.

Lead Pursuit, Inc.

Joyswitch

At this time, I feel the need to personally address an inanimate object, so here goes. "Joyswitch, baby! Where have you been all my life?"

Lead Pursuit's Joyswitch is a multi-port switching device that permits the connection of up to four separate joysticks (or yokes, wheels, etc.) and two foot controllers to the same computer, hassle-free. The attractive Joyswitch control center (a 6" x 4 1/2" x 2 1/2" all-metal box) connects to the computer just like a joystick, then peripherals are connected to the rear of it, while two very robust knobs on the front let the happy little joystick hog pick and choose his desired weapon for each given activity. The Joyswitch also sports a special hook-up for the Thrustmaster Weapons Control System.

Joyswitch
JOYSWITCH

The unit also allows for the simultaneous use of two control devices for head-to-head simulations, or, if the mood strikes, one joystick for gas/brakes. This product simply emanates heavy-duty quality, and no additional power is required. A marvel of simplicity, the Joyswitch certainly makes life a lot simpler for us joystick reviewers. Price: $59.95.

For More Information

Advanced Gravis (604) 431-5020
AI Technologies (510) 226-8960
CH Products (619) 598-2518
Duggan Dezign Inc. (401) 823-8073
Home Base Products (800) 686-2523
Lead Pursuit Inc. (714) 362-8698
Logitech Inc. (800) 231-7717
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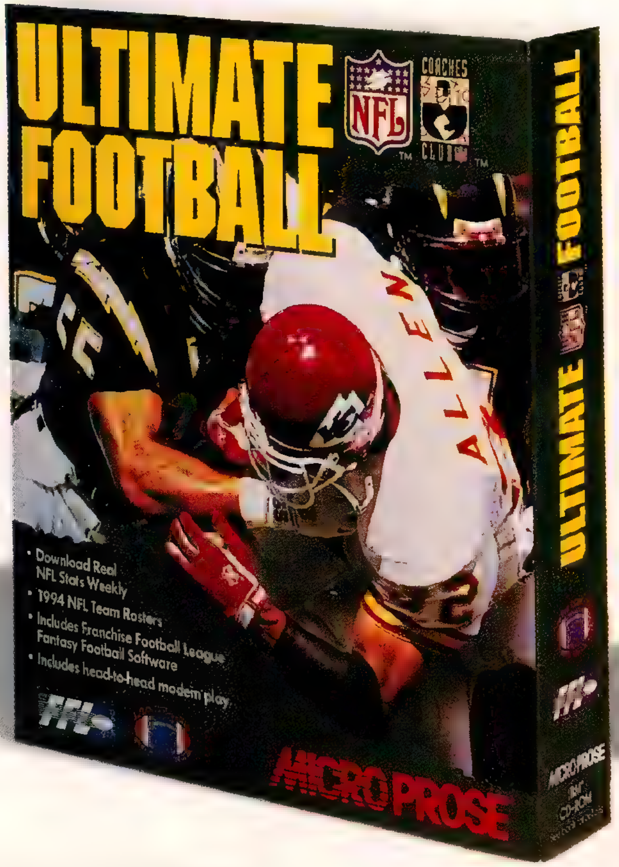
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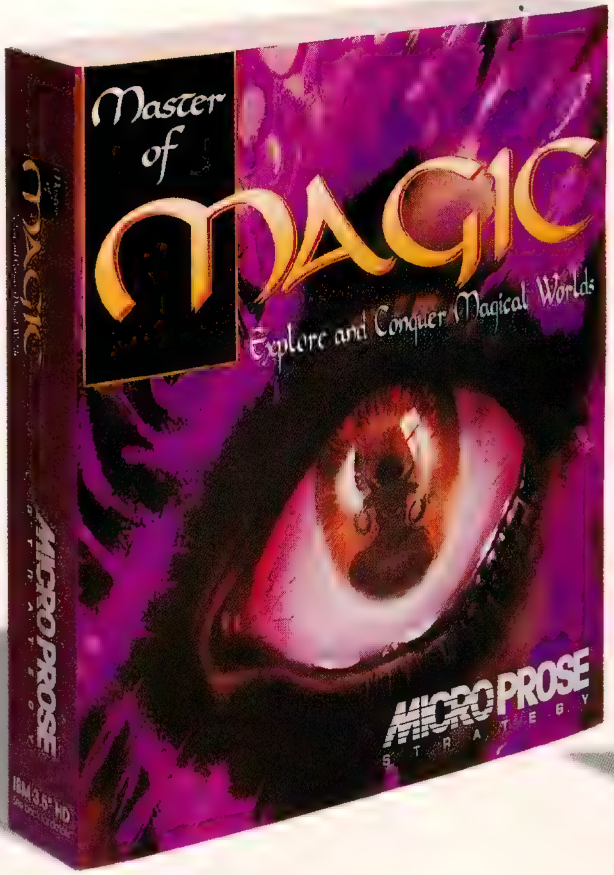
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Colonization was voted "best new strategy game at Summer CES," by the Chicago Tribune.

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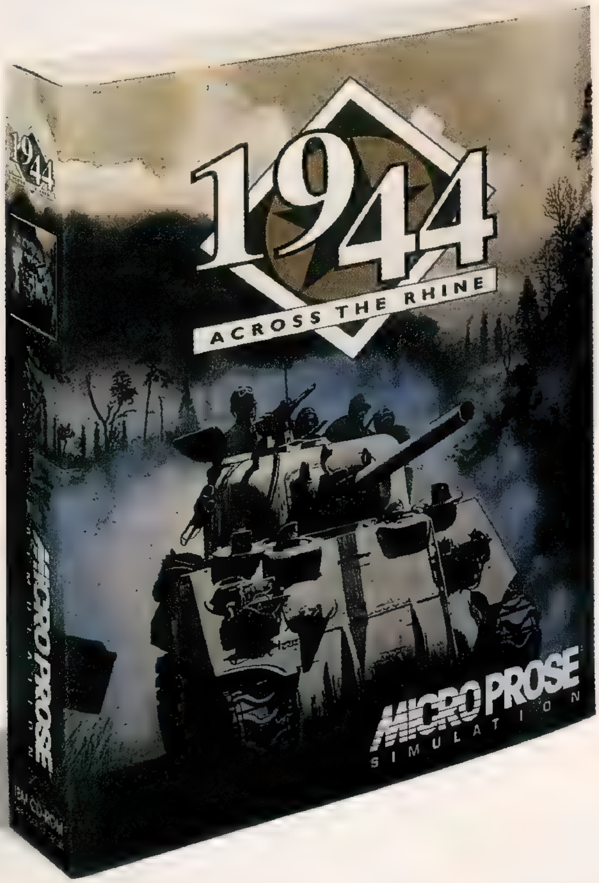
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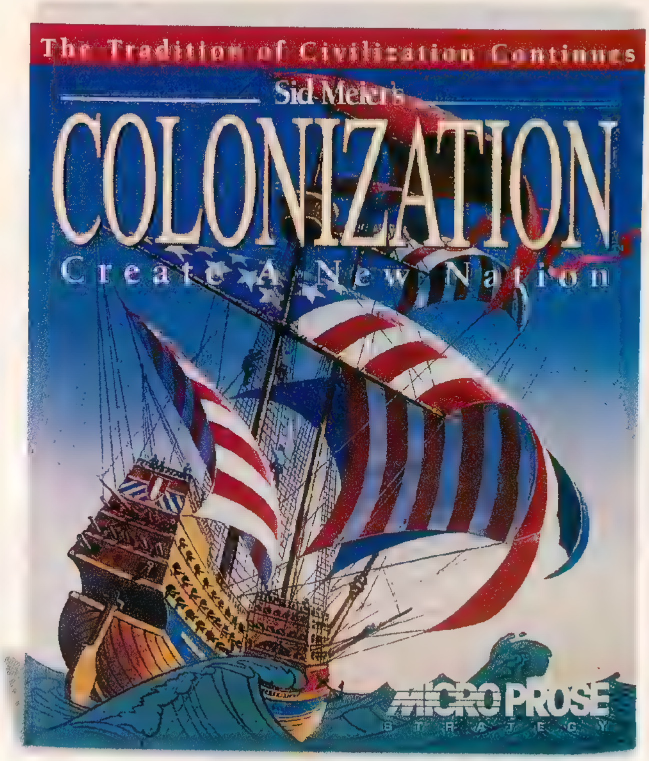
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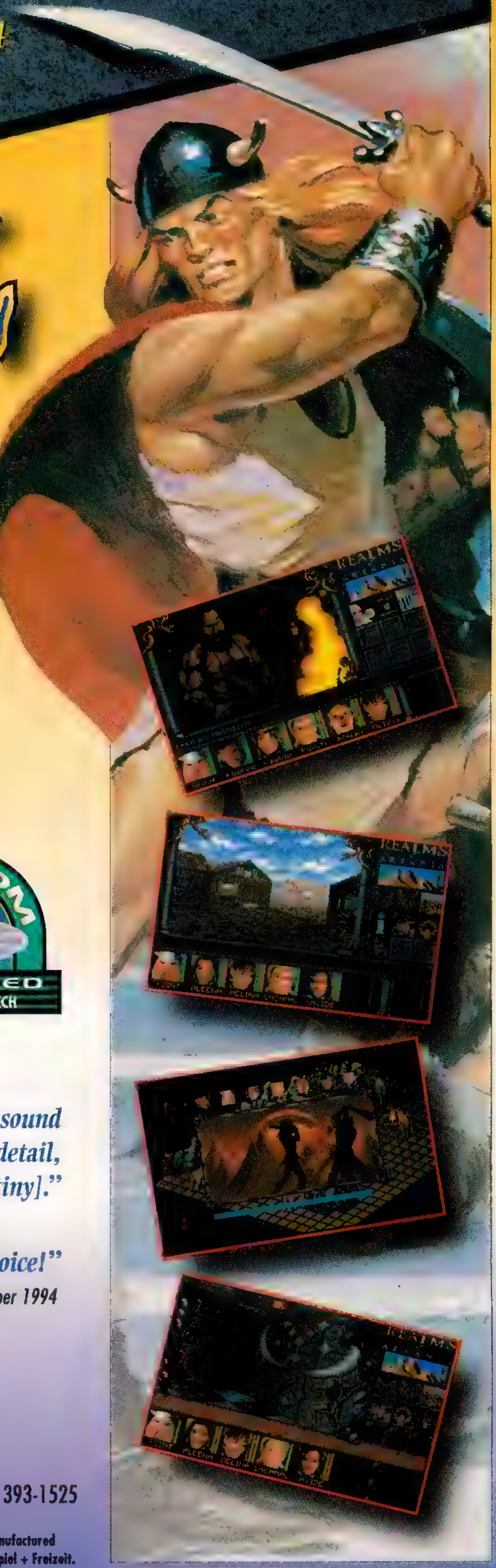
Circle Reader Service #150

"... impressive

... a new angle on the classic role-playing adventure..."

– PC Gamer, September 1994



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"3D scrolling animations and massive improvements on both the graphics and sound fronts now complement a game engine which the designers have redesigned in detail, responding to virtually every criticism levied against [Blade of Destiny]."

– Strategy Plus, September 1994

"Fans of Sir-tech's Realms of Arkania series: Rejoice!"

– Electronic Entertainment, September 1994

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Circle Reader Service #112

The Dark Sun Also Rises

SCORPIA ENTERS THE WASTELANDS ONCE AGAIN IN DARK SUN: WAKE OF THE RAVAGER

by Scorpia

SCORPIA'S STING

Wake Of The Ravager is the second Dark Sun game, although it is not exactly a sequel to Shattered Lands. This time around, your party of heroes finds itself in the city of Tyr, and quickly becomes entangled with the Veiled Alliance, a group mentioned only in passing in the previous game.

Your heroes join the Alliance just in the nick of time. The Dragon King of Ur Draxa has his eye on Tyr and has sent his best agent, the Lord Warrior, to make preparations for the Dragon King's takeover. Lord Warrior has his own agenda, however, which includes reincarnating a horrible monster, the tarrasque, star ravager of the title. It is a very nasty critter, and not something you want running around the neighborhood. Your mission, which you just accepted, is to stop the Lord Warrior before he can bring the tarrasque back into the world.

As in the previous game, you have a party of four characters to help you accomplish the mission. They can be Human, Dwarven, Elven, Half-Elven, Halfling, Half-Giant, Half-Dwarven or Thri-Kreen (Mantis). Professions include Fighter, Gladiator, Ranger, Cleric, Druid, Psionicist, Thief and Mage. Not all races can be all things, but the range is varied enough to allow a good party to be built up, especially as non-human characters can have two or three professions at once.

Newly-created characters come into the game at 7th level, or 6th if they have more than one class. As is the norm for an AD&D product, you can modify a character's stats and hit points to your liking at creation time. Given the opposition in this game, doing so is highly recommended.

For those who played Shattered Lands and kept a save game or two, you can transfer your Shattered Lands characters over to Ravager. They come in at whatever level they were at the time of the save. More importantly, they will also appear with much of their equipment intact. This includes Phrain's Bow, El's Drinker, Dark Flame, and even the +4 Dragonsbane picked up at the end of Shattered Lands.

In terms of play, Ravager uses the same game engine as Shattered Lands. The view is from an overhead perspective, with the party represented by the leader's icon. Movement can be done one step at a time using the keyboard (handy in some situations) or by scrolling the cursor to the desired location and clicking.

SCRY SIGHT

New World Computing's late 1995 release, Might & Magic VI, will use a new game engine employing the popular 3D, smooth-scrolling perspective. The story is almost complete and will kick off a new trilogy within the popular universe.

Dragon's Eye Productions is developing a new on-line RPG called Dragon Spires, a multiplayer game mixing graphics *a la* an early Ultima, interaction like Habitat, and the accessibility of an Internet MUD. Although it isn't finished (there's exploration and social interaction, but no combat), interested gamers can FTP the graphic front-end via the Internet (ftp.eden.com in the pub\dspire directory) and then play the game via telnet at boris.eden.com 7734.

Chris Crawford expects to finish his long-awaited Le Morte D'Arthur by April, 1995. In addition to a system that generates unique plot elements each game, Crawford's upcoming Camelot saga is expected to use new facial expression technology and rich artificial personality routines.

The cursor can be cycled by mouse button through four icons: the arrow, for movement; the eye, for looking at things; the arrow/sword, for combat; and a representation of an item being used. In addition, there are a number of hot keys for looking at inventory, bringing up the character screen, casting spells, and quite a few other actions. Between the mouse and keyboard, things get done quickly and easily.

As before, you see the entire region at a glance by invoking an automap. However, in some areas this map shows nothing. It is not clear if this is a bug or if it is deliberate. For instance, the map does not display anything in the mines or the Yuan-Ti temple. On the other hand, you can still scroll the cursor around the entire area you're in to see what's there, so the lack of a map is not really a handicap.

Also as before, you can set the game difficulty to easy, balanced, hard, or horrendous; this controls the amount of hit points your opponents have. For new teams, difficulty defaults to "balanced"; for transfers from Shattered Lands, the difficulty defaults to "horrendous."

Combat is turn-based, with each character moving individually. The game waits for your actions, so you have all the time you need to consider strategy when it's your turn. Targeting is done by putting the movement cursor on an opponent and clicking; the character will walk over and hit him (or it). For bow weapons, the arrow cursor is clicked on the target, and for spells, the spell icon.

Preemptive strikes are possible. In many situations, the party can edge up close enough to an enemy to get off a spell or arrow volley before the enemy knows you're there. This is a very handy tactic, particularly against especially strong or numerous foes.

One of the nicer features is that, in several situations, you don't have to fight a big battle if you can find an alternate solution. For instance, early on, the Alliance asks your party to find out what the Templars are up to, and there are two ways to do this. The hard way is to find the Templars and start a fight (a very tough one, too). The easy way requires a little stealth, and you end up having to fight only one person instead of ten or twelve.

DARK SUN: WAKE OF THE RAVAGER

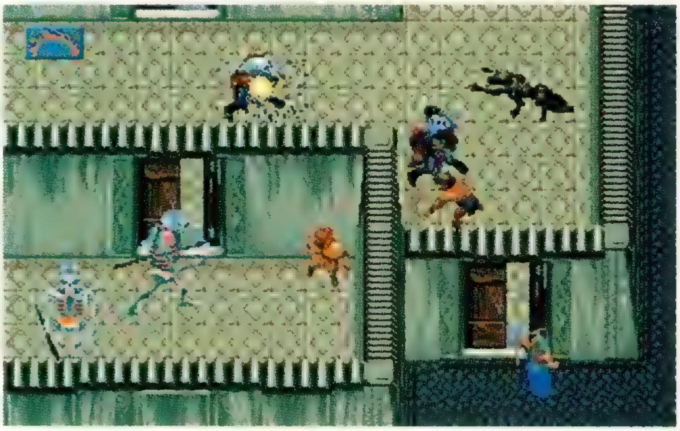
DARK SUN
WAKE OF THE RAVAGER

Price: $64.95 CD-ROM, $59.95 Floppy
System Requirements: IBM 386-33Mhz or compatible (486-50Mhz recommended), 4MB RAM, VGA graphics, 25-75 MB (uncompressed) hard drive space, CD-ROM; supports Aria, Gravis (native), Sound Canvas, Soundscape, Soundman Wave, Sound Blaster (not AWE32) and Wave Blaster sound cards.
Protection: None
Publisher: Strategic Simulations, Inc.
Sunnyvale, CA
(408) 737-6800

Game structure is similar to Shattered Lands: there is a main line with several quests to complete, and several side plots that do not affect the main line, but provide experience and/or items for the characters. The three major quests (Ruby, Lyre, Hammer) can be done in any order, as they are standalone scenarios.

CD HARD DISK RUN

The game comes in both a CD and floppy disk format, with the CD adding some speech, music and cinematic scenes. The CD version must be installed to your hard disk, although you have three different installation options, requiring either 25, 30, or 72 megabytes of hard disk space. And that's just for the game: you will also have to allow for ten save games. The save files start small and grow as you progress through the game. By the time you're near the end, the files will be in the 800-1000K range, so be sure to plan for that at installation time. Be aware that Ravager must run from an uncompressed hard drive.



A BONE TO PICK A party of four adventurers take on the skeleton crew guarding a temple. The Dark Sun combat interface is very easy to use, but the perspective can make sighting awkward.

You will also need a lot of space in RAM. The game requires a minimum of 620,000 bytes (605K) of base RAM or it won't run. An additional two megs of EMS or XMS is also necessary, so your system should have at least four megs RAM total, and more is better.

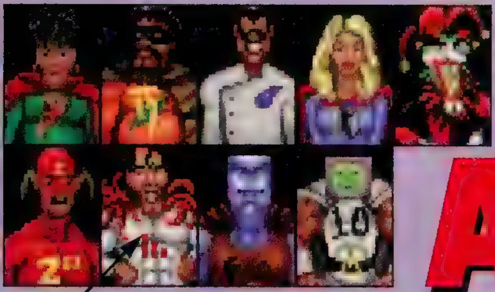
For CD users, you'll need MSC-DEX driver 2.2 or higher, and a drive with access time of 350ms or better and transfer rate of 150KB/second or better. In addition, the documentation warns that Ravager will not work on a Sony CDU 33A Rev 1.0C drive. My own drive is a Sony CDU 33A (uh-oh). However, the game played fine on it, so mine is probably not the dreaded 1.0C. If you own a CDU 33A, check the revision before buying Dark Sun: Ravager.

DARK SUN SPOTS

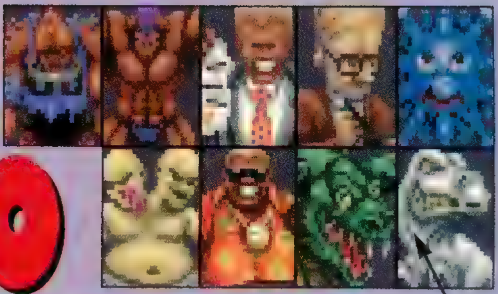
Sad to say, Ravager has problems. Some of these seem to be related to memory, while others are programming goofs that were not fixed before the game went out the door. Crashes or lockups appear to be the most common problem, likely caused by inefficient memory use. Players using EMM386 for memory management report more crashes than those who use something else. I use QEMM, and I experienced a few crashes during play—maybe five all told—and they did not occur in any particular pattern, except in one situation. Crashes seem more likely while your party is resting at the fire ring in the pyramid. Avoid using the ring or save beforehand, just in case.

Other difficulties can arise during the second rescue of Magnolia, where you have to bring her back to Athas through a magical tapestry. You arrive inside a tent, but the view suddenly flips to the exterior. I finally found a way around this problem by using the keyboard to move the party (which I couldn't see, of course) by trial and error to the tent's exit. Once I got the group out of there, everything was fine again, and we could re-enter the tent without trouble.

Another sore spot is in the mines.



"THIS AIN'T NO STANDARD RPG!"



– COMPUTER GAME REVIEW

Forget those dwarf and dungeon games!

The United States is a toxic wasteland. Horrible monsters spawned of radiation and environmental toxins roam the countryside.

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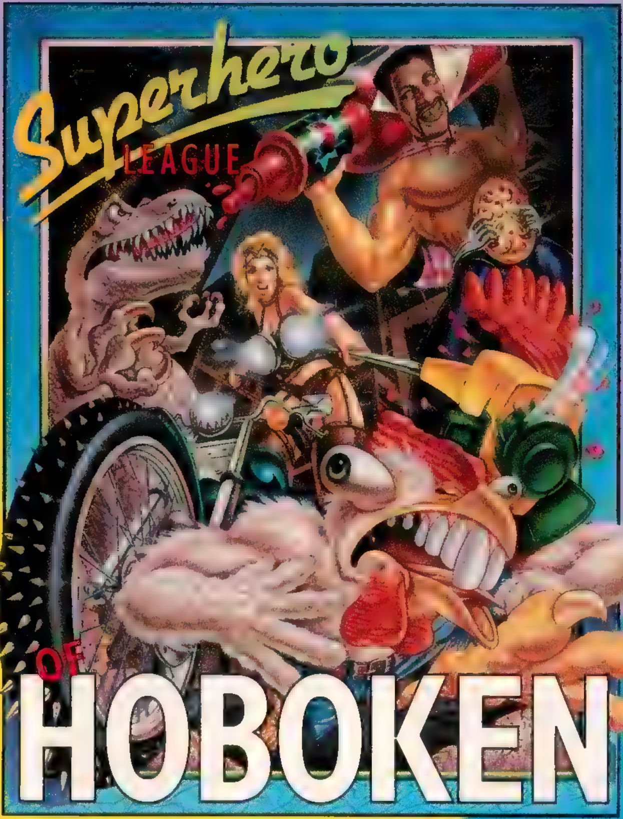


You've never seen monsters like these!

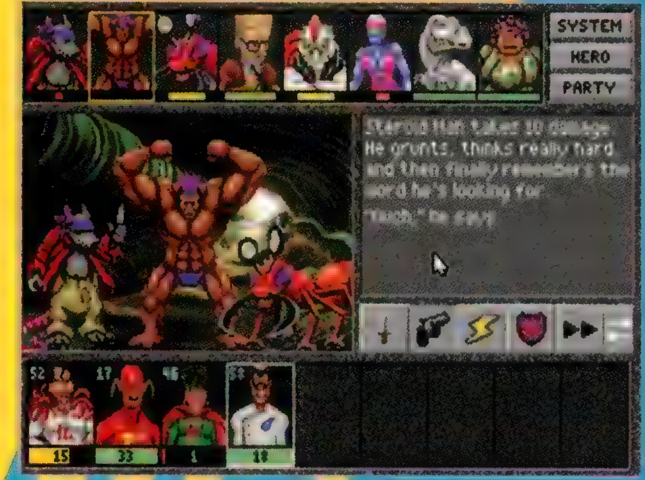
You'll battle **Steroid Man, Screaming Meemies** and even (gasp!) **Lawyers**. Attack the ferocious **Aerobots** (flame-throwing exercise teachers). Fight the dreaded **Albino Dino** and 30 other wacky mutants including **Cy Young Cyborgs, Cruise Mistletoes** and the awesome **King Kong Salmon** who must return to the top of the Empire State Building to spawn!

GOLDEN TRIAD AWARD

"A unique blend of adventure and role-playing, colorful and challenging"
– Computer Gaming World

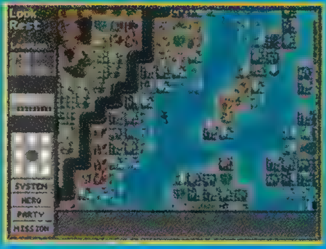
"Not only meets, but beats the competition"
– Strategy Plus

"Everything computer entertainment should be; a rousing success!"
– Computer Game Review



Steroid Man takes 10 damage.
He grunts, thinks really hard and then finally remembers the word he's looking for.
"Ouch," he says.

Actual VGA graphics shown



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Game design by Steve Meretzky

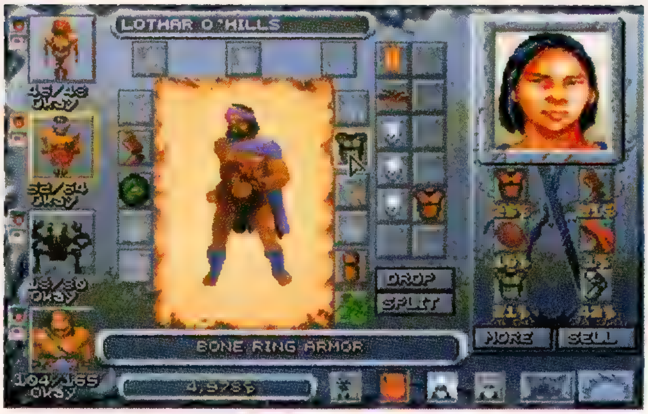
Circle Reader Service #145

There is a secret door in an area called "The Old Digs" that only opens after a certain event has occurred. However, you must go directly down to The Old Digs after this event, or you won't be able to walk through the door, even though it is open. This caused me a great deal of grief until I finally restored back to before the event, then went directly down to the Digs afterwards.

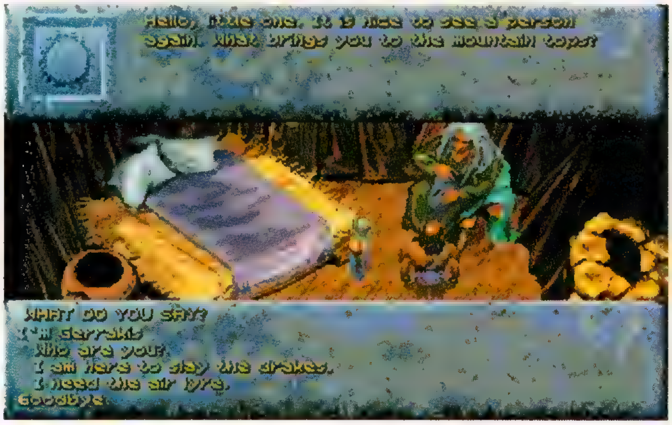
Further in the mines, you are supposed to have the option to poison a room full of extremely nasty creatures. Unfortunately, a programming glitch prevents this, and you will just have to go in there and fight it out with them.

There are other messy points, including: the Prayer spell not working; the Delayed Fireball Spell operating in a strange fashion (there is no delay, and it leaves a sort of burning residue behind it); converted money of transferred characters being lost if you pool it before entering play; one place where you can obtain unlimited experience points (not too useful in a game where characters top out at level 15, unless they're triple-class characters); and NPCs either thanking you for doing something you haven't yet done, or acting as if you haven't completed a quest when you have.

Fortunately, SSI is working on a patch that will address many of these problems, and by the time you read this, it should be available on-line and direct from SSI. The upgrade is also supposed to reduce free RAM requirements, which should give players some more breathing room and cut down on the number of program crashes.



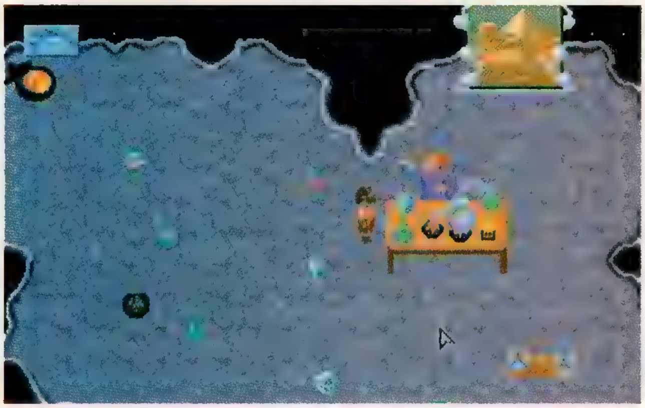
BACK TO GHOUL SALE Lothar visits a merchant to try on the latest in adventurer's fashions. Good armor is hard to come by in WAKE OF THE RAVAGER, so grab it when you can.



Hello, little one. It is nice to see a person again. What brings you to the mountain tops?

WHAT DO YOU SAY?
I'm Serraks
Who are you?
I am here to slay the drakes.
I need the air lyre.
Goodbye.

EASY CONVERSATION The conversational system in RAVAGER is fairly standard—click on the options until you can click no more.



HELP MR. WIZARD A wizard has been banished to the ether by his wife, and our adventurer must solve a logic puzzle to free him.

On the poor design front, there are few really good items in the game, and this puts new teams at a disadvantage. Weapons are mostly +1 or +2; there is a nice +2 club that also delivers a shocking grasp attack, and a couple of +3 Bows of Accuracy you can pick up. You can also get the +4 Bloodletter, but this sword also makes your armor class four points *worse* when equipped. El's Drinker is available in the Yuan-Ti segment (so don't skip that; this is the best weapon in the game). Some +3 weapons also show up, but these are two-handed, and in this game, you are much better off with a weapon in each hand rather than one in two hands.

Armor is generally as bad as in the first game. Leather, bone, or metal, none of it provides much protection. Most of the time, the best you can come up with is five points of protection from combined chest, arm and leg pieces. Only one good set of armor exists—Promere's Armor (all pieces +4 or 5)—and it is not easy to come by. You can get one +4 leather chest piece on the Lyre quest. A couple of +4 bracers are available for mages, and that's about it. No magic rings or necklaces (except the Fire Ruby, which can be worn as a necklace, and a +1 necklace you can pick up in Veiled Alliance HQ), no magic cloaks except the useless Shadow Cloak, which operates like an invisibility spell (it works so long as you don't attack or cast a spell, since doing so breaks the invisibility).

What I found most depressing, though, is that this game's story is mundane. Where the first DARK SUN offered the refreshing objective of uniting villages to stand against an army, here we have fallen back to the tired old "Kill Foozle" quest combined with the usual "Pick Up Sticks" subquests. In this case, Foozle is the Lord Warrior, and the sticks are the four artifacts of (everybody, all together now!) Earth, Air, Fire and Water. Ho hum. We have been this way many times, and by now this scenario is getting old and dusty.

Overall, RAVAGER is something of a disappointment. The bugs, programming glitches, and generally unpolished feel of the game show that this one was pushed out the door far too soon. Certainly, it should have been tested more thoroughly. Yet RAVAGER is not without merit. Some of the individual adventures (the Verini murder mystery and the mine killings, in particular) are interesting, and the ability to get through some situations with little or no combat is a nice feature. So RAVAGER is a mixed bag, although worth playing if you are a DARK SUN fan and you've waited for the patch or a revised release. ◆

Ages ago,
In the damp passages of
the Old World
Evil was defeated
And Chaos was cast into
the shadows of time...

In darkness
It waits

Dungeon
Master™ II

This Christmas, the Master of all Dungeon Games Returns

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Circle Reader Service #2[illegible]

The Postwoman Only Stings Twice

Ah, fall is here at last! Cool days, longer nights (Fred's favorite, heh), and soon, we hope, a flood of new games to keep us warm as winter approaches. Haven't been many so far, but then I'm writing this in early fall, and things may be different by the time this sees print.

Before we get to the good stuff, once again I remind correspondents that if you live in the US (or have an APO/FPO), you have to include that self-addressed, stamped envelope if you want a reply. Every month, there are at least three or four letters that arrive without it. Maybe people think I don't really mean it, and I'll send a response anyway. Well, I do mean it. No SASE, no answer, no exceptions. This applies only to the US; people living elsewhere are not required to provide postage. The post office does not accept foreign stamps on outgoing mail, for one thing, and I don't expect anyone to scrounge up US stamps in a foreign country. DO NOT SEND MONEY! Please! There is no charge for answering your questions. Got all that? Good!

SCORPIA'S
MAIL

Superhero League of Hoboken: So ya wanna keep Juanita warm (hehe). The fur coat is a start, but it won't keep her neck cozy, right? Right! So you call on the most obvious hero, and get just what you figured, a car part. Now what? Hey, you know the old saying: if at first you don't succeed.... And there's that annoying warlord, too—the guy with the steel-lined toupee. Can't be very comfortable to wear, so why not relieve him of this burden? A little switch, a little attraction, and the problem is solved.

Ultima 8—Pagan: People could wander around in the Pit of Death for a long time wondering what it is they're really looking for or what they're supposed to be doing. All you want is the Heart of Earth. The easy way to get it is to go through the small door in Stone Cove and head west to the big building with the skeletons inside. Use a golem to get the doors open. What you want is in the middle of the dirt patch (the golem is handy for keeping the skeletons off your back, too).

The Elder Scrolls—Arena: Riddles again (these are what most people have trouble with in the game). So the stiller you stand, the faster you run, eh? This time, the answer is really easy, although hours could pass before the solution occurs to you. Don't get glassy-eyed over it, though.

Ultima VII—Serpent Isle: There you are in Shamino's Castle, all dressed up and no place to go. You've been in all the outer rooms, but the keep in the center defies all your efforts to get in. So, the first thing to do is get out. Can you call up the doggie yet? If not, a visit to the Great Northern Forest is in order. After that, wooden you know it, a little tracking is necessary. Then you can return to the castle and have one less problem to deal with.

Return To Zork: Not surprisingly, a lot of adventurers cross the river, and then say, "I can't get back!" It sure looks that way, but there's a secret here. After you've been to the Bel Nair Temple, your map has become a magic map (the game doesn't tell you this, just mentions you've received a gift of some sort). Just bring up the map, click on any place you've been before, and—poof!—there you are.

7th Guest: So, you've finished the first level of the house, except for that one room off all by itself, with no apparent connections or entryway. You can almost hear it jeering at you: "Nyah nyah, try and find me!" Irritating, isn't it? Besides, if you don't get in there, you can't finish the game. So maybe you should pay a little closer attention to that grand staircase there. You may have missed something.

Ultima Underworld II: One of the most annoying things (even in real life, whatever that is) is waiting for someone who doesn't show up. Someone like Mors Gotha, for instance. Here we have Avatars hanging around the keep, poking into the rooms, sacking out, talking themselves hoarse, all to no avail—Mors just doesn't make an appearance. Maybe you just got ahead of yourself. Perhaps a quick trip home is in order. You might find a little surprise waiting for you there. If you do, then you'll know it's time for a chat with Mors.

Sam & Max Hit The Road: You need to get a ring. You know where it is. You've got the golf thingie. But it just isn't quite long enough to reach the item. So close, and yet so far! You need a hand here. A jarring thought, perhaps, but 'tis so. I recall when playing this part, the answer kinda snuck up on me. Maybe it will on you, too.

Hand of Fate: Having a little trouble getting to that chest behind the musical teeth, are we? Been to see the fireflies yet? Pretty little things. Musical, too. Could there be a connection? I wouldn't be surprised. You can make it easy on yourself, or hard on yourself. The hard way is trial and error. The easy way is a fruitful one. Remember to have pencil and paper handy to write things down; you'll need this sequence again later in the game.

And that's it for this look into the mailbag. In the meantime, if you need help with an adventure game, you can reach me in the following ways:

Delphi: Visit the GameSIG.

GEnie: Stop by the Games RoundTable.

US Mail (remember what I said above!): Scorpia, PO Box 338, Gracie Station, New York, NY 10028.

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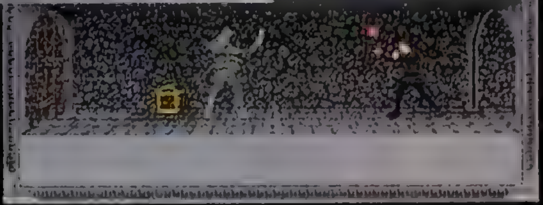

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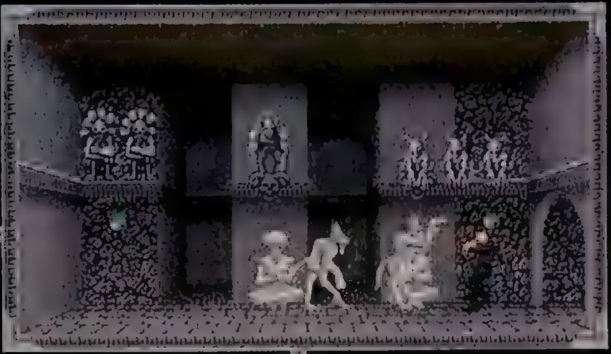
The wizard's tower is not a friendly place.



Unfortunately, neither is his hedge maze.

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SADDLE UP AND RIDE THE

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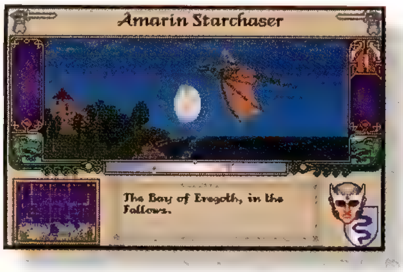
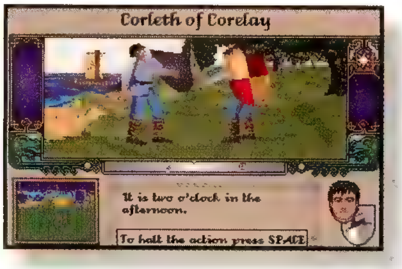


The Bay of Eregoth, in the Fallows.

Travel the realm on dragonback. The 32-bit terrain generator gives you both straight-ahead perspectives as well as tree-skimming views.



It is two o'clock in the afternoon.

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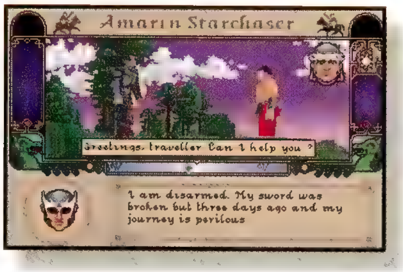

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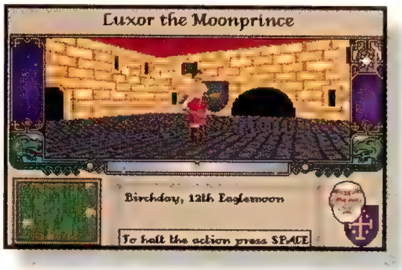

Birchday, 12th Eaglemoon

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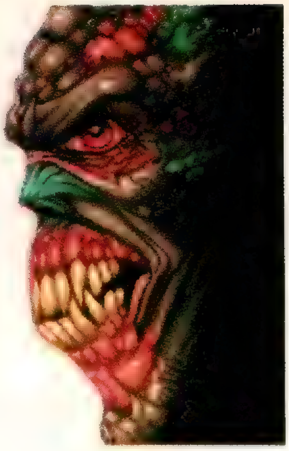
The Trail Of Tears



An Exhausted Adventurer Relates Tales Of Glory And Misery In Star Trail

by Petra Schlunk

How often do we view a game as “the enemy,” a foe to be quashed and savagely beaten? With a steely glint in my eye and fresh blood on my sword, I have just emerged triumphant from the final battle in Star Trail, the sequel to **Sir Tech Software**'s Realms of Arkania: Blade of Destiny. To say that I had fun would be inaccurate; to say that I cursed and raged against this game, yet could not stop playing it, would be closer to the truth.

In Star Trail, your party must recover a lost artifact, the Salamander Stone, that once symbolized an alliance between the elves and dwarves of Arkania. Without this symbol, no reunification between these now mutually distrustful races can occur, making them easy prey to the power-hungry orcs.

But the quest is not as clear-cut as it seems, as you discover at the beginning of the game. After being hustled into a tavern by a serious elf, you are told about the Salamander Stone and asked to find it and return it to a dwarf. Immediately thereafter, a shady looking character approaches you and offers a handsome reward for retrieving the artifact and returning it elsewhere. You are then left to your own devices.

Realms of Arkania: Star Trail

Price: $79.95 CD-ROM, $69.95 Floppy
System Requirements: IBM compatible 486-33 or better, 4MB RAM, VGA graphics, 24-70MB hard drive space, CD-ROM; supports most major sound cards.
Protection: Documentation Check
Designer: Attic Entertainment
Publisher: Sir-Tech Software
Ogdensburg, NY
(800) 447-1230

THE CAST OF CHARACTERS

Generating a party for your adventures can be as simple or as complicated as you like. You can use the pre-generated starting party or import your heroes from Blade of Destiny; you can allow the computer to create characters of specific classes; or you can create each character, one attribute at a time. Warriors, hunters, rogues and magic users, including witches, druids and mages, can be generated to fill your party of six members. All characters have positive attributes—strength, agility, charisma, etc.—that modify their abilities to accomplish various tasks, but they also have shortcomings, such as acrophobia and violent temper, which may cause them to behave in less desirable ways. The combination of positive and negative attributes will determine the classes available to that character.

A character's creation does not end when his or her attributes have been defined. Characters also have many skills and, if they are magic users, many spells. All characters can become proficient at any of the 50+ skills, although character classes with a natural ability in certain areas, such as rogues for picking locks and hunters for tracking, start with higher levels in those skills. Similarly, all magic users can eventually learn to cast any of the 80+ spells. Spells are treated as skills, with numerical values indicating how proficient a magic user is at casting them.

TOWN AND COUNTRY

The towns in Star Trail feature the same sorts of places as those in Blade of Destiny. Temples are abundant, dedicated to an assortment of gods, and dangle the prospect of the odd miracle. You can save your game at temples, although the 50 experience point penalty for saving elsewhere, as was the case in Blade of Destiny, has been eliminated. You can generate new characters at any temple and adjust the composition of your party. Taverns and inns are plentiful and afford you with the opportunity to slake your thirst, fill your bellies, question other characters, and rest when needed. Towns also have stores where armor, weapons, herbs, potions and other items may be purchased or sold. Professional healers are found in towns, but are rare, tend to be poorly skilled, and are more likely to do harm than good.

Towns in Star Trail occasionally have warehouses where goods may be stored, for a price. That is fine, but the misfortune is that there are few towns in this game. The likelihood that one would ever wish to endure the arduous travel to a distant town with a warehouse merely to retrieve an item is slim at best. On the other hand, carrying around items just on the chance that you might reach a town where you can sell them is rarely profitable. Extra items weigh down your characters, significantly and sometimes fatally slowing them in combat. Worse, you will find the most interesting items when you are far from a place to store or sell them. You must constantly decide what to take and what to leave behind. There are even places where you must split your party for extended periods of time. Deciding who will carry what and whether particular characters have enough space for the things you *may* need is a constant challenge in the game.

Travel in towns is much more convenient and much more scenic in this game than it was in its predecessor. Movement is from the first-person perspective, with the view changing depending on whether your party is being lead by a short dwarf or a tall elf. You can travel in a stepwise

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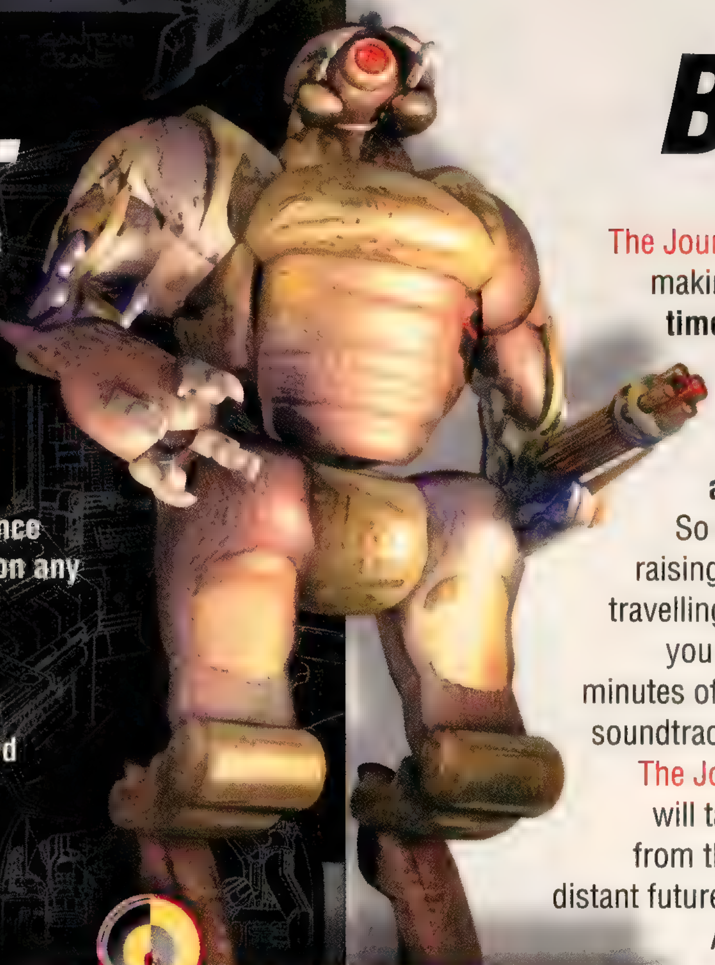

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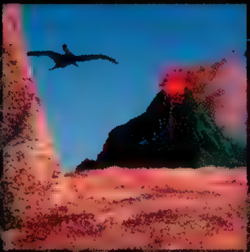

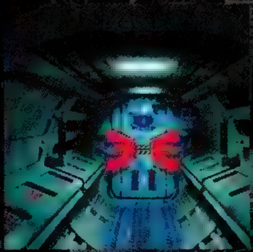

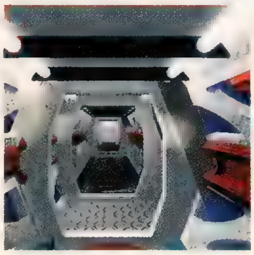

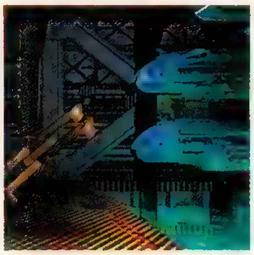

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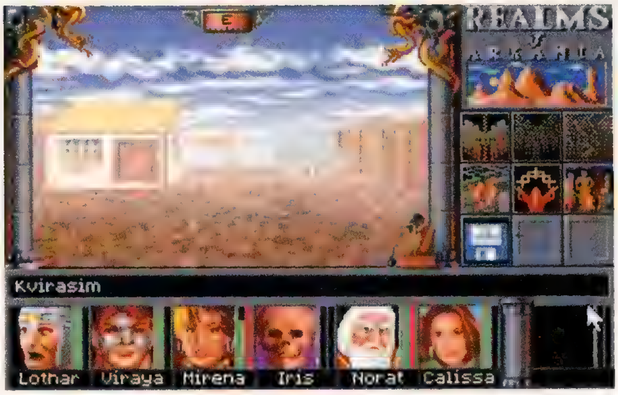
fashion or make use of the smooth-scrolling option. After you have explored a town, you can switch to the overhead automap. Buildings on this map are color-coded and can be identified by clicking on them. You can travel on the automap, which significantly speeds movement through towns.

Your party will spend a lot of time "on the road" and in dungeons. Dungeon travel is similar in many ways to moving in towns. Your explorations will be automapped with important objects depicted on the map, although you cannot travel via the automap when in a dungeon. Traveling outside is, in a sense, a game in itself. You choose directions for travel from a huge overhead map. This map does not scroll, nor does it have convenient labels for towns. You can only make travel plans for as far as you know the available paths. On the road, your party will have to maintain its food and water supplies by hunting. You may also wish to send characters out to gather herbs, since these are necessary for healing your party members when they fall ill.

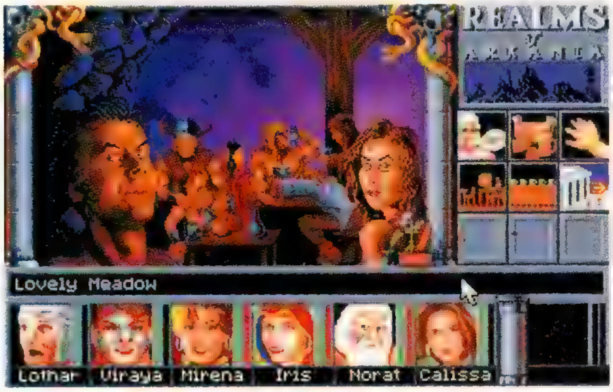
Bad weather and attacks by orcs and other beasts are the natural hazards of traveling through Arkania. Characters frequently become sick; the standard "common cold," contracted when a character gets wet, cold or tired, is called Numskull and must be treated promptly or a more dangerous condition will develop. Unfortunately, treating this or any other disease requires that you have someone skilled in healing in your party and that you have the appropriate herbs, which tend to be difficult to find and expensive to buy. Sickness is all too frequent; I found myself saving my game constantly just so that I could avoid having to worry about healing ill party members. Besides frequent illnesses brought on by traveling and fighting, attempting to heal wounds sustained on the battlefield is dangerous. Tetanus is a common result, the only cure for which is visiting a competent healer, who is a very rare beast.



SCROLL IN THE HAY The quaint abodes of this rural village scroll by nicely in the new free-scrolling Realms of Arkania movement mode.

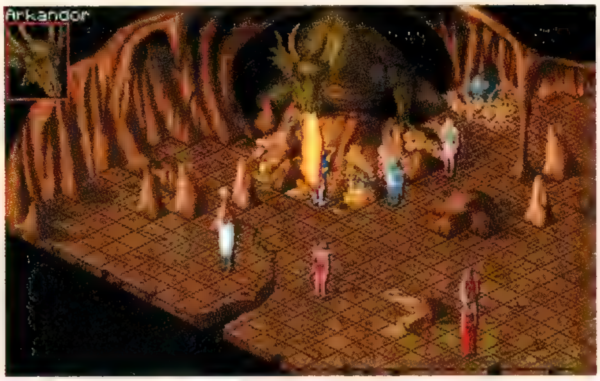
WHEN THINGS START WEARING THIN

Traveling outside has other unattractive adjuncts. When a character's rest is interrupted, they will not heal and frequently even take more damage! The most galling thing of all, however, was that my characters' boots started wearing out when they were far from any town! They took damage daily, a problem that could not be rectified until they lugged themselves to a distant town.



DANCE CLUB DENIZEN Strange characters populate the taverns of the Realms. A few drinks and careful conversation could earn you a hint or two.

The result is that traveling out of doors can be as aggravating in Star Trail as it was in Blade of Destiny. Although Star Trail has an added feature, allowing your characters to repeat their previous night's actions so you do not have to reassign actions every time you camp, it turns out to be less helpful than it sounds. This is because hunting for food and water is often unsuccessful, and sending out a second character to hunt may be necessary. On the other hand, you do not want to have characters do more than necessary because extra food weighs a lot and characters who do things during camp heal less and are more susceptible to disease.



BAD BREATH CAN KILL Near the end of the game, a band of woman warriors runs into Arkandor in a dark alley. The combat system is very detailed and very time intensive.

Conversations with NPCs are necessary for learning what your party needs to do in the game. Thankfully, conversations, which proceed by clicking on key words, can be recorded in a diary. This diary has a search function that allows you to find all of the references to specific items, people or places. Unfortunately, most people you meet know nothing, and the only way you learn this is by questioning them repeatedly. Many people will cut off conversations after a few questions; other people, with something useful to impart, tend to hang around a bit longer, giving you the opportunity to ask them key questions. But even the conversational side of this game is not without its problems. While most people will tell you all they know about something the first time you inquire, there is one exception where you have to ask repeatedly about something in order to make progress in the game.

FIGHTING AND FUMBLING

The combat system in Star Trail is virtually identical to that in Blade of Destiny. The turn-based combat takes place on a grid, and decisions are made one character at a time. Individual battles can take a long time because actually hitting an opponent or successfully casting a spell is a

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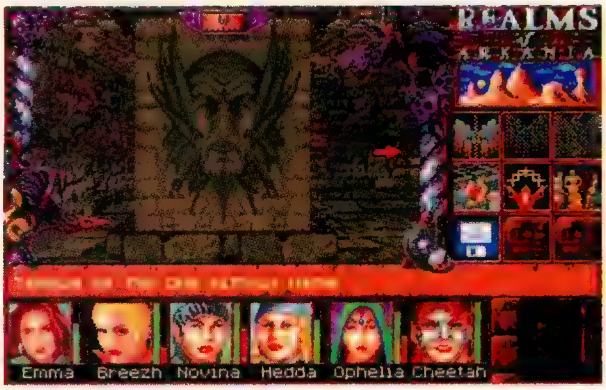

DUNGEON OF DOOM Dungeon exploration uses a free-scrolling movement system that, when combined with images of nameless demons, reminds one of a certain popular action game.

rare thing. Battles are often highlighted by weapons breaking and characters injuring themselves from fumbled parries or attacks. Experience and other rewards for combat are minimal, and the real value of fighting is that your party can move forward in the dungeon or over land. STAR TRAIL features two forms of auto-combat: you can have the computer direct your party's actions, although you must then accept the poor combat choices it makes (such as mages suddenly thinking that they can take on a warrior in physical combat), or you can avoid the spectacle of combat altogether and have the computer calculate the results. The auto-combat features are really not options unless your party is significantly stronger than what they are up against.

While STAR TRAIL is prettier and features more conveniences than BLADE OF DESTINY, it contains the same persnickety details, and is, therefore, primarily a game for avid paper-and-pencil role players. Further, STAR TRAIL contains a number of frustrations embedded in its plot design. There were times when I was convinced that I had made a fatal error in the game, to the point where I even started over with a new party. I only later learned that there were, indeed, ways around some of these problems. Unfortunately, access to useful information is limited, and clues are rare. Petty annoyances, such as wearing out one's boot leather and having one's thief throw self-injuring temper tantrums over challenging locks, also make for frustrating game play.

What is most irritating for me is that after all my raging and cursing at this game, there is a part of me that wants to go back and play it again. It is a deep and rich game, though it can be overly so at times. STAR TRAIL is definitely a game for the hardest of hard-core role players—those who will fight anything, even a frustrating game system, to finish a quest.

THE EDITORS SPEAK

REALMS OF ARKANIA: STAR TRAIL

RATING ✸✸✸

PROS Impressive graphic improvements over the original REALMS OF ARKANIA. Handy diary and automapping system, and rich character creation and spell systems.

CONS Extremely aggravating in spots. Too many senseless details, a high failure rate in doing most things, and long, boring travel segments. For the hard-core only.

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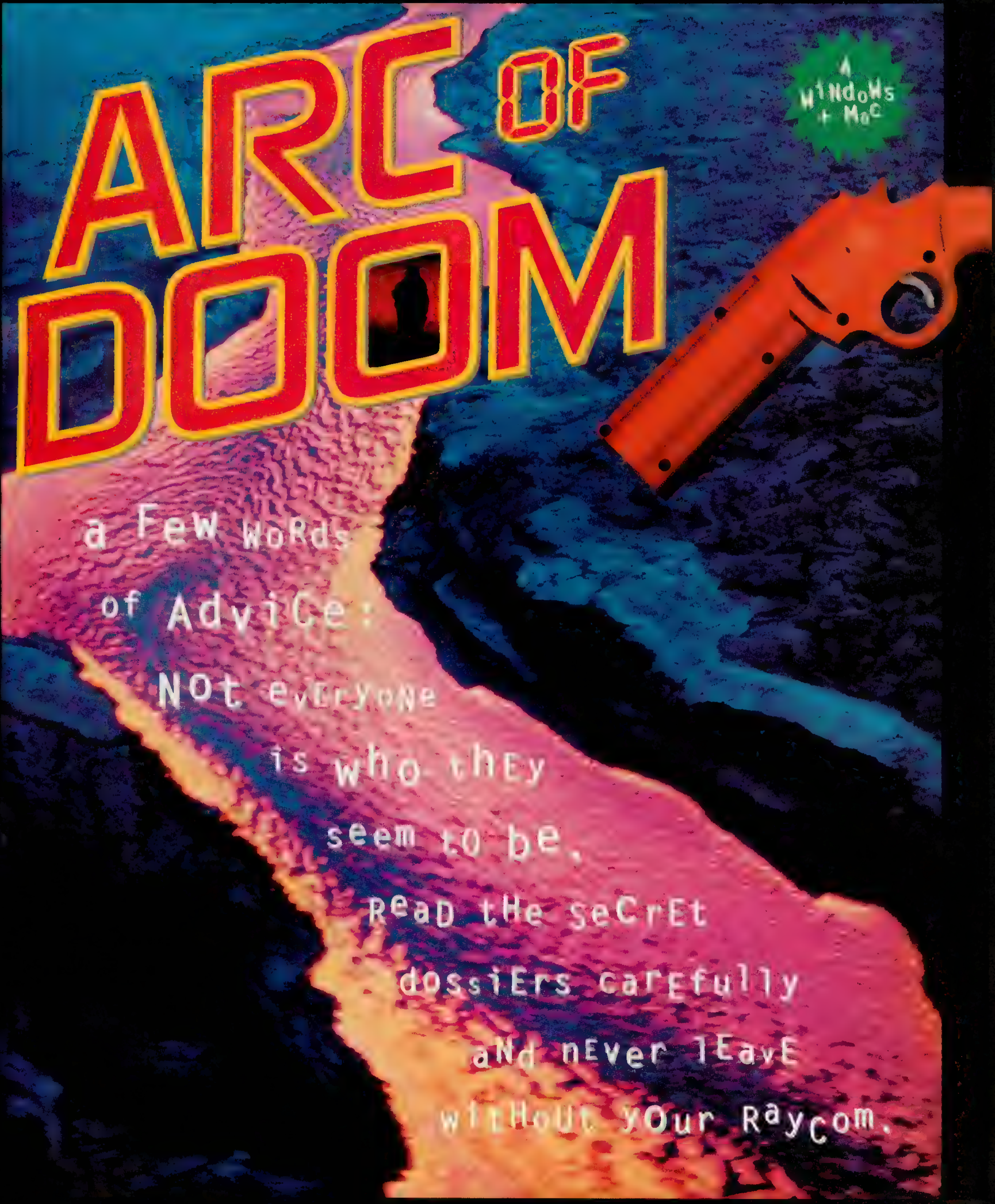
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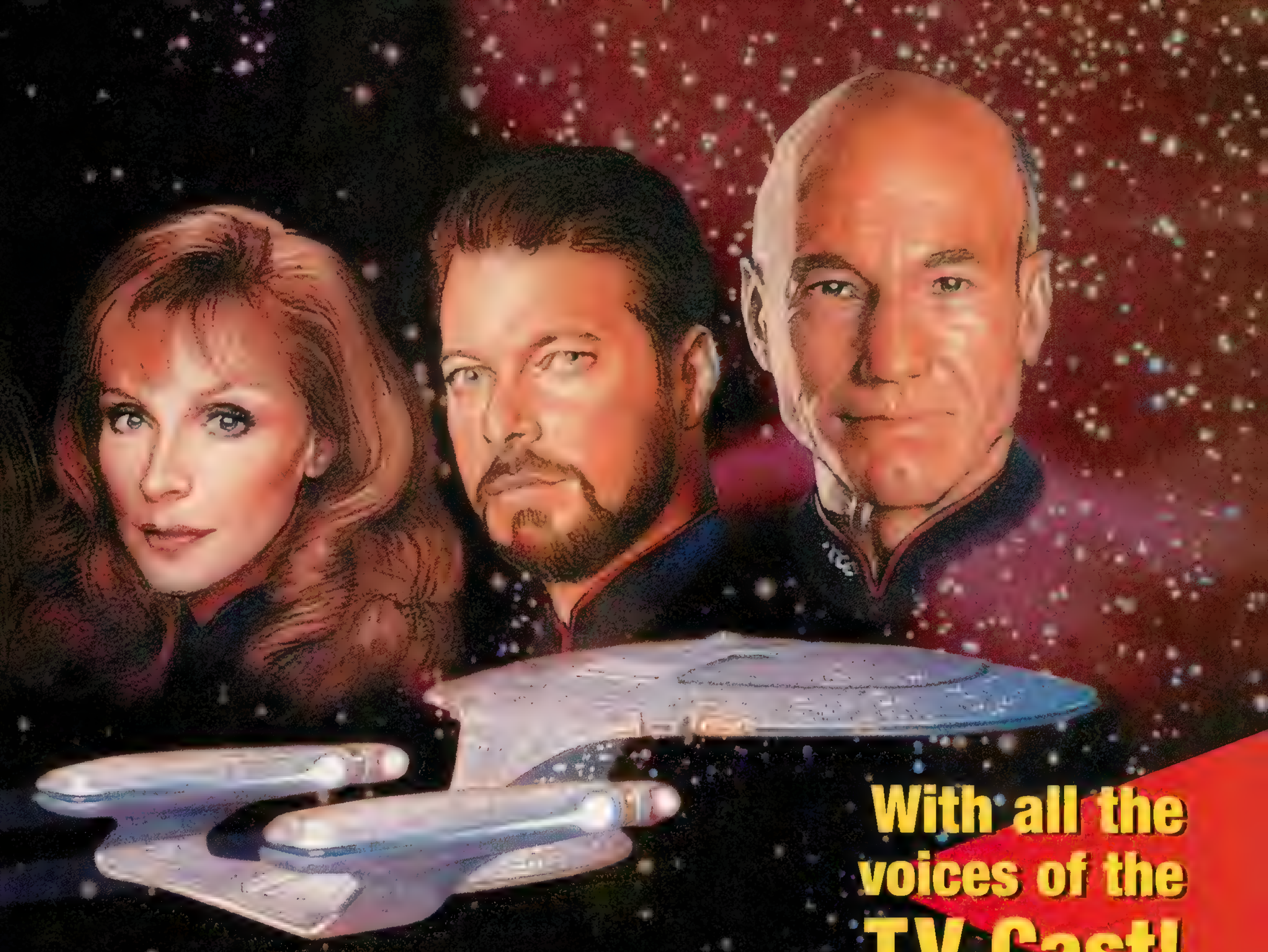
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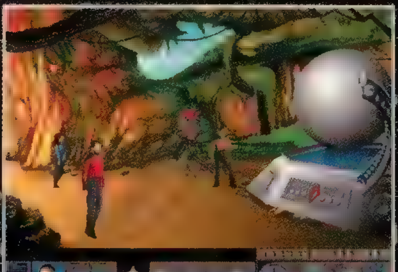

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What A Tangled Web We Weave

Empire's DreamWeb Offers Its Share Of Sticky Situations

by Charles Ardai

Not very far into DreamWeb, the new dark-fantasy adventure game from designer Neil Dodwell, the main character hears voices in a dream that tell him to hunt down and kill a rock star. So he goes to the hotel where the rock star is staying, splits one bodyguard's head open with an axe and blows another away with a pistol, storms into the room where the oblivious rocker is being straddled by a vigorous and buxom groupie, interrupts the coitus, and puts a bullet in the guy's chest while he's still detumescing.

DreamWeb

Price: $59.95
System Requirements: IBM compatible 386 or better, 25MB hard disk space, mouse; supports Sound Blaster compatible sound cards.
Copy Protection: None
Designer: Neil Dodwell
Publisher: Empire Interactive
Gaithersburg, MD
(800) 216-9706

empire
DreamWeb

This is the beginning of the game, you understand. These are only the first three of many murders the player is asked to commit, and they don't get tamer as you go along.

As far as sex goes, the game never again reaches quite the same peak of intensity or explicitness, but even just the one scene puts DreamWeb off the scale relative to the typical computer game. To put things in perspective, it's a scene you couldn't show on network TV, not even on "N.Y.P.D." Blue. Maybe not even on cable.

It's a good thing for Empire that the subject matter is provocative, because other than that the game has: graphics that look like they were drawn by hand by a second-rate comic book illustrator; sound that comes from the Ominous Chords school of composition; an action window that only fills up half the screen and is surrounded on all sides by extraneous filler material; and a looking-down-from-on-high perspective that will make players nostalgic for the old Ultima games, which at least made scenes look less blueprint-like by displaying them at a bit of an angle.

All of this strike me as, at the very least, something of a pity. If you're the sort of person who likes seeing heads split by axes and lusty hardbodies rutting in all their full-frontal glory, you are likely to want photo-realistic images and a soundtrack full of digitized groans; and as far as I am concerned, you deserve a game that delivers. To my mind, designers like Dodwell are the worst sort of teases: they proudly rush in where angels fear to tread, but leave you wishing that, instead of rushing, they'd spent more time polishing their game.

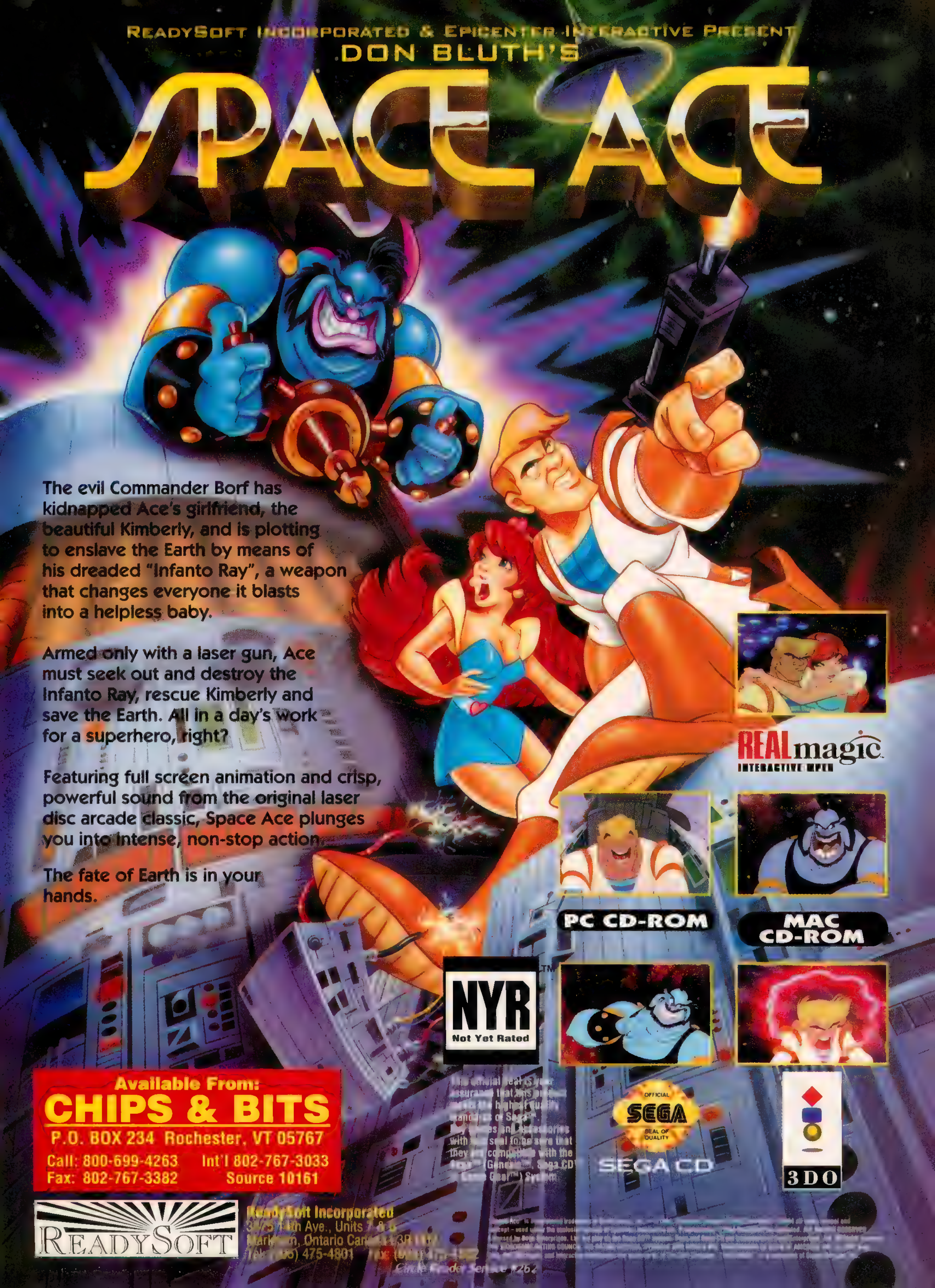
IN THAT SLEEP OF DEATH, WHAT DREAMS MAY COME

In DreamWeb you play Ryan, a man who thinks he is on the verge of losing his mind. He's wrong, as it turns out, but for a long time it's not clear whether he is not losing his mind after all, or just that he's not on the verge.

True, the guy has visions of an ancient order of hooded mystics who gather in a gothic temple and give him instructions on how to save humanity; and true, these instructions tend to involve killing people, usually by shooting them, but sometimes in more creative ways, such as by dropping heavy weights on their heads. True, also, that unlike most people who have similar dreams, Ryan goes ahead and acts on his. But does that make him crazy? Might it just possibly be true that if Ryan doesn't go on his killing sprees the world will come to an end, destroyed by a sinister confluence of pollution, collusion, and nuclear proliferation?

No, of course not—except that in this game the answer is yes. It's all rather adolescent, a dream come true for those who like their entertainment paranoid, fatalistic, nihilistic, and solipsistic. For a game that sees itself as "adult," DreamWeb has an awful lot of the alienated teenager about it. The slim prose diary that comes packed with the game, titled "Diary of a Mad(?)man," reads like the fevered ramblings of a greasy 18-year-old who has spent too much time bumming joints at Pink Floyd concerts. And the game's storyline, which casts the player in the role of a delusional(?) serial killer, brings to mind lanky young men who attend parades with guns in their pockets in the hopes of impressing Jodie Foster.

Mind you, I think there is room in the market for a game whose main character is a serial killer (though perhaps one wishes that this one endorsed Ryan's nasty little hobby a little less enthusiastically). Certainly, the life of a serial killer imposes some interesting demands, such as the need to move stealthily but decisively and the need to conceal one's activities from everyone in one's life. There is fun to be had as Ryan skulks about the dark and rainy city streets, tracking down



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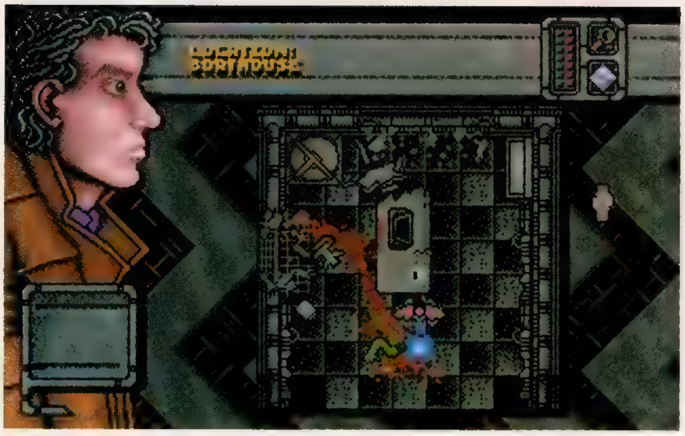


ANOTHER ONE BITES THE DUST This gore-spattered room is but one brutal chapter in the DREAMWEB story.

his victims while trying desperately to keep his girlfriend, Eden, from finding out how he spends his nights.

The main chance the game has for success, though, is that people will take it less seriously than I did, that they will treat it as straight fantasy, centered upon a genuine supernatural threat the player has to avert, and ignore the fact the game asks you to steal from your friends and gun down innocent bystanders without blinking. If you look too closely at the story's uncomfortable resemblance to the insane rationalizations offered by sociopaths like the Son of Sam ("My dog told me to kill them"), you may feel a little queasy when the time comes to pull the trigger.

BAD DREAMS

In most technical regards a conventional adventure game, DREAMWEB has a few design peculiarities that take some getting used to. To begin with, there's the overhead perspective; you have to realize that the hair-colored circle with a shoulder on either side is you. Then there's movement: although you move around by pointing and clicking in the action window just as in any other game, it only works if you click on an object. Simply clicking on the part of a room you would like to move to doesn't work.

Conversations with Eden and the other characters are a simple matter of clicking on the character you want to talk to and reading the conversation that follows. The only thing to get used to here is that the conversations are entirely non-interactive, which is disappointing but hardly unheard of.

Solving the game's puzzles requires one to become accustomed to an odd way of dealing with the objects in Ryan's inventory: you have to examine an object in your possession before you can use it. There is no way to use one object in inventory on another, short of dropping one of them, clicking on it, and then selecting the other from inventory when the game prompts you to do so, which it doesn't always do. More generally, there is no way to use an object on something else. You can do the reverse, click on a lock and then click on a key in inventory in response to the question "Use lock with...?", but you cannot click on the key first and expect the question "Use key with...?" to appear.

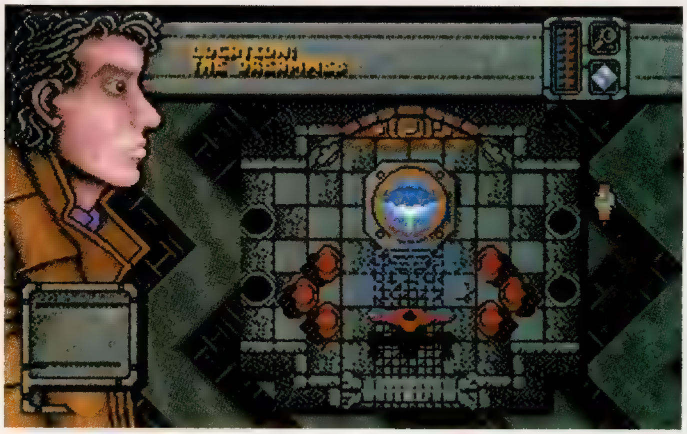
These may sound like minor adjustments for a player to make, but in practice, they are more than trivially annoying. Just as DREAMWEB'S graphics are materially worse than most games in its category, its interface is worse, too, and in ways that are utterly unnecessary. I assume that Dodwell and his crew have played adventure games that have sophisticated, modern interfaces. So why have they cooked up this variant which any playtester could have told them is more inconvenient, convoluted, and unsatisfying? It just doesn't make sense.

In the end, there is a lot that doesn't make sense about DREAMWEB, even if you set aside technical issues completely. Dodwell presumably was out to be provocative when he wrote DREAMWEB, and he succeeded, and for this I take my hat off to him; but what exactly was trying to provoke? What point was he trying to make?

I don't think it is unreasonable for us to ask how Dodwell wants us to feel about Ryan and the homicidal quest on which he is sent. If he expects us to buy into it, to look at Ryan as the misunderstood victim of circumstance he fancies himself, I'd say this is a case of a designer completely missing the implications of his material. On the other hand, if Dodwell wants us to assess Ryan from a critical distance, just what conclusions is he hoping we'll come away with?

As a game, DREAMWEB is solid, full of mildly interesting puzzles and tense situations that require some creativity to resolve. It's technically backward, but not deplorably so. There is enough mental and visual stimulation to keep a gamer occupied for a couple of hours. But that's not all a game has to deliver. As a text, for which the designer, as author, is morally responsible, DREAMWEB is on much shakier ground.

I, for one, am always glad to see a nude scene in a game. I am a big proponent of envelope pushing. However, context must be considered, and here the storyline strikes me as ill-conceived, or if well-conceived then ill-executed.



DREAM WEAVERS The cloaked attendants of the DreamWeb have a grisly task for Ryan: ruthlessly murder seven people. Ryan is willing, but his justification is weak.

To be blunt about it, if you are going to ask me to send a naked woman scurrying at gun point while I blow a gaping hole in her prone lover's chest, you'd damn well have a good reason for it. And "the voices told me to" just ain't good enough.

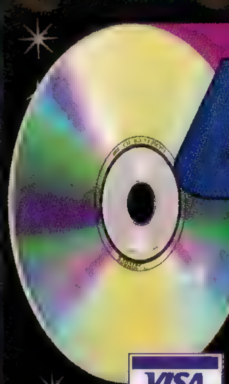
THE EDITORS SPEAK

DREAMWEB

RATING ✸✸ 1/2

PROS The game takes a chance with some risky and risqué material, and sometimes makes it work.

CONS More often, it doesn't.



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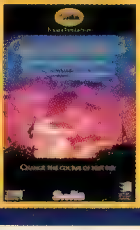

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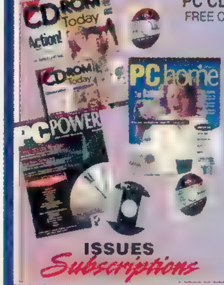

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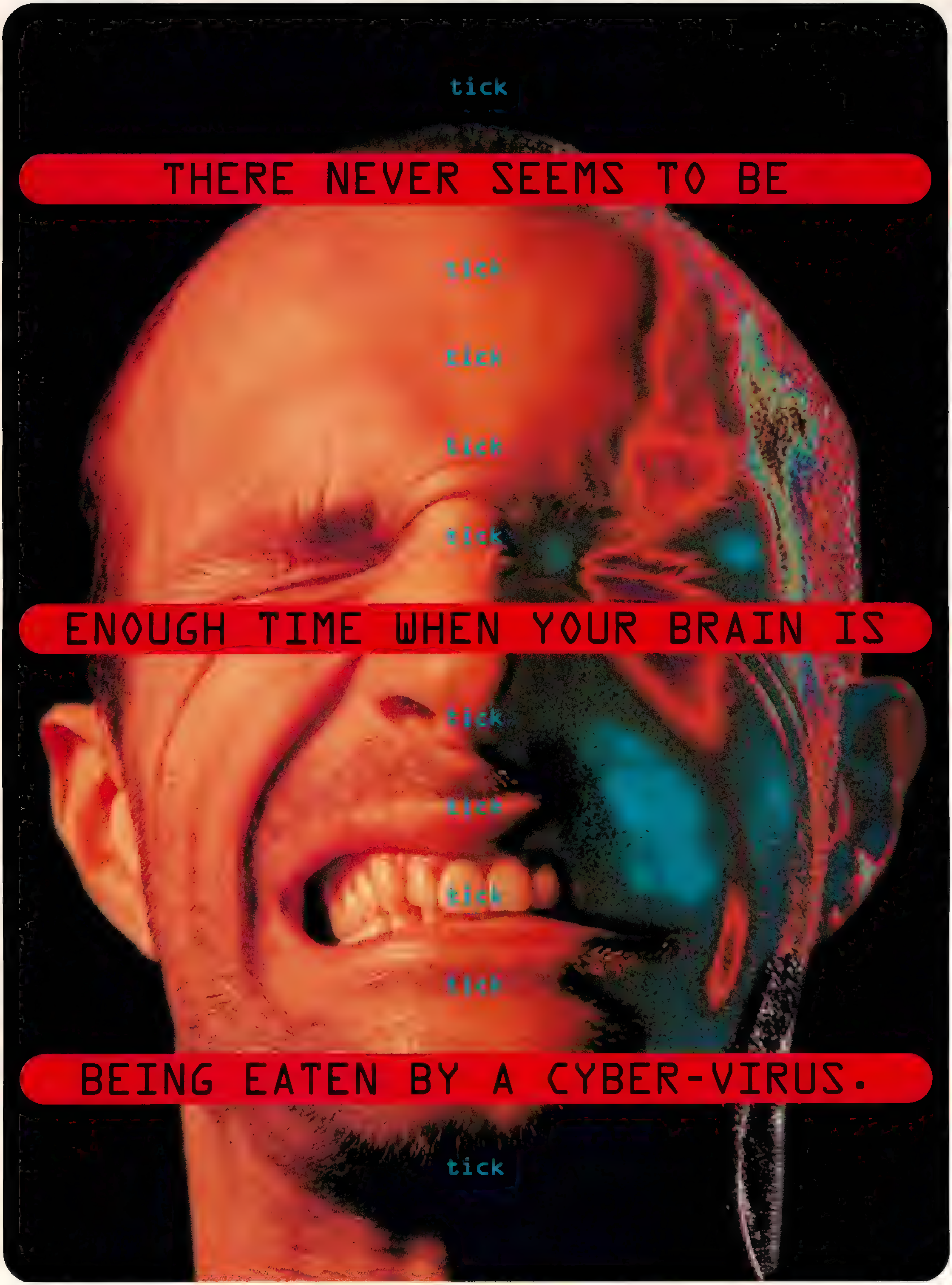
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THERE NEVER SEEMS TO BE
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ENOUGH TIME WHEN YOUR BRAIN IS
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tick

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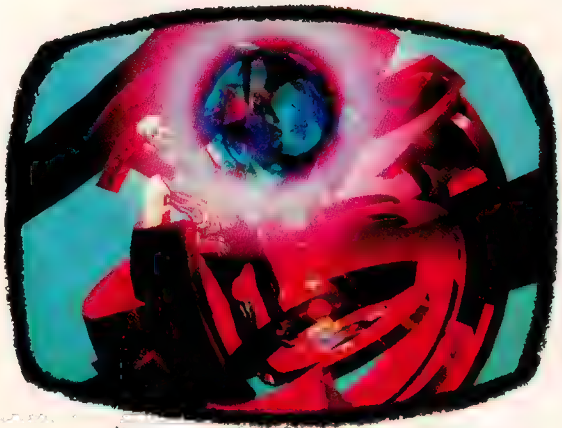

Hardwire your neurons. Critics are calling Burn:Cycle "a totally synthesized, fully transcendental, bio-controlled, electronic rush." Man, what an understatement.

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The Howling

Sanctuary Woods' Wolf Answers The Call Of The Wild

by Vince DeNardo

© Archive Photos

"If all the beasts were gone, men would die from a great loneliness of spirit, for whatever happens to the beasts also happens to the man. All things are connected. Whatever befalls the earth befalls the sons of the earth."

—Chief Seattle, 1855

My first real awareness of the wolf occurred in a darkened movie house, probably like many others, watching for the first time *Never Cry Wolf*. The film eloquently spoke of another species with a different agenda for life. It touched upon the many issues—moral, financial and environmental—that arise when animals compete for the same space as man. It gave no answers, merely sharing with me a glimpse of a world outside the society in which I had chosen to live. Wolf, from **Sanctuary Woods**, takes you into that world, allowing you to become a member of the society of wolves; a society that is as structured as the one from which we frequently escape when we turn to computer games. But make no mistake, Wolf is not a game. It's an ecological simulation, deeply rooted in environmental science. That's not to say that the hours won't fly by as you sit staring at the screen, completely immersed in the sounds, smells and sight of a world as seen through another species' eyes; it's just that educational products don't usually use role-playing in as entertaining a fashion as Wolf.

Wolf

Price: $49.95
System Requirements: IBM compatible 386SX-25 or better, VGA graphics, 2MB hard drive space (CD-ROM version), CD-ROM; supports Sound Blaster compatible sound cards.
Protection: None
Designers: Ivan Manley, Sam Palahnuk, Dave Hasle
Publisher: Sanctuary Woods
San Mateo, CA
(415) 286-6000

The package offers a wide variety of material with which to interact, including a written documentary in hypertext on the various skills, habits, pack dynamics, and evolution of the wolf. There's a real wealth of material in this section, providing solid background material on all aspects of the wolf and his world. The assistance of Wolf Haven International, a Washington state-based wolf research facility, has added tremendously to the educational value of the product. The only downside to the material is the lack of voice-over narration and actual film footage to illustrate many of the topics covered. If presented as a form of interactive *National Geographic* or *Nature*, the material would feel less like a science textbook, and more like a field trip. There is some film footage in the product, including some scenes from Disney's *White Fang*, but it is only enough to whet your appetite.

There's also a demo section that let's you watch the simulation at work. In it, you follow a wolf from an isometric perspective as it goes about its daily doings: sniffing, watching, listening, marking territory, looking for water and prey, challenging, mating and most importantly, avoiding man. Just as wolf cubs learn behavior from watching their mother, you'll be given some of the basics of survival before you're turned out of the den.

HUNT AND PACK

Gamers, like wolf pups tend to have a natural tendency to leap right into things, so Wolf comes with a whole variety of scenarios that will get you out into the world before you lose your pup-like enthusiasm. There are three geographic regions you can choose to move through: the Arctic, where the prey is less numerous but easier to catch due to a lack of masking vegetation; Timberland, where the prey is plentiful, but well hidden; and the Plains, where the prey is bountiful, the terrain's flat, and man is everywhere. The mating season, type of prey and the contact with man are different in each area.

Each region has 14 scenarios to choose from, differing in complexity, size of the world, length of time, weather, season, human population and number of hunters. The scenarios are all based on single tasks: Find a Den, Find Water, Survive a Day, Keep Your Cubs Alive for a Week, Find a Mate, Become an Alpha, Find a Missing Cub, and Moose Group Hunt. Each scenario teaches a skill that is necessary to learn if you're going to survive. The scenarios are all preset as to the environmental settings, so after choosing one and learning some background information on the wolf you'll be playing, you're ready to leave the den.

You mouse-control your wolf in a VGA world of terrain appropriate to the geographic region, with all the vegetation, prey and weather you'd expect to find. It's simple to move the little guy around since he stays centered on the full screen display, and moving the mouse farther towards a corner of the monitor will control his speed. The graphics have a pleasant, natural feel to them, and most

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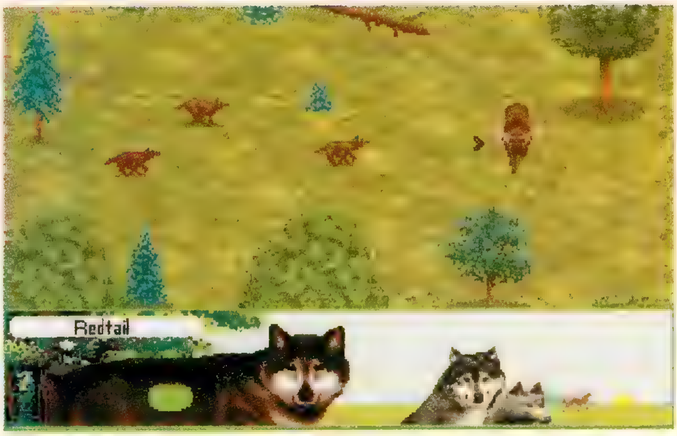
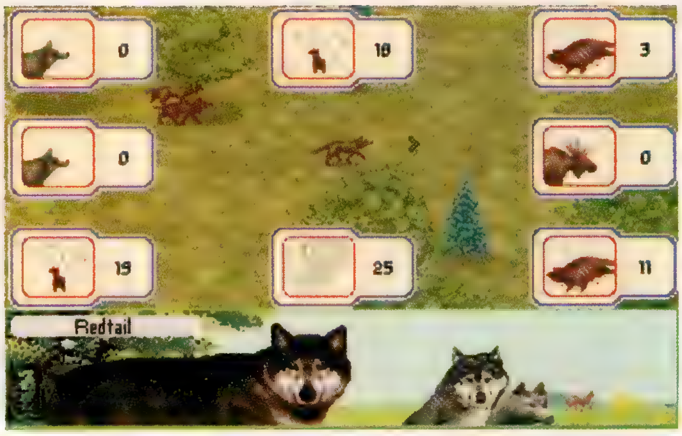


LOOKS LIKE LUNCH Redtail and his pack move in on a moose weary from the chase. If they're successful, the pack will have plenty of meat to give to the hungry little mouths waiting back at the den.

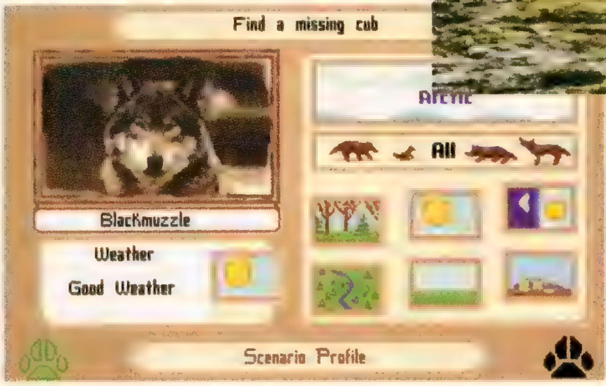


CATCH A WHIFF The wolf's nose knows everything that stinks in his neighborhood. The numbers on the smells indicate how many "screens" away the stinker is.

terrain and animal features are easy to distinguish, although at dusk and during the night, it becomes hard to distinguish terrain and prey within a heavy growth area. This seems appropriate, though, and adds to the feeling of role-playing.

In addition to directing your wolf's movements, you also control his vision, sense of smell, and hearing in order to get information about the environment. Mouse clicks or hot keys call up an overlay of small windows in each of the cardinal directions, and the illustration in each will tell you what you can see or smell. In addition, you'll hear footsteps, animal calls or the dreaded sound of aerial hunters. As you move through the world, you'll find yourself constantly sniffing the air, listening for telltale signals of food or danger, and looking for familiar landmarks. Identification with your wolf is strongly reinforced, as failure to do so quickly results in death and a reloading of the scenario. And you will die *a lot.* If thirst doesn't get you, then starvation or hunters will. Don't even try to tackle a moose without help, or you'll quickly learn why wolves hunt in packs.

Eating, drinking, carrying food, burying and uncovering surplus food, feeding cubs, sleeping, barking, howling, mating, and marking territory all contribute to keeping your furry alter ego constantly on the go, and it isn't long before your four-legged familiar seems to take on a life of its own. If you have him stand in one spot for a length of time, he'll sit, and eventually lie down. Conservation of energy is a prime directive of nature. If he's injured, he'll walk or trot with the slightest of limps. By forcing you to totally immerse yourself in the wolf's everyday existence, you soon begin to see the world with different eyes, interpreting sensory information in a completely new manner.



PUP QUEST Wolf offers dozens of scenarios that explore all facets of wolf life. In this scenario, a mother must track down a pup that has strayed from the den.

LET US PREY

Once you've mastered the skills to survive a scenario, it's time to move on to a full simulation. This is where you control everything. Unlike the scenario set-ups, the sim mode allows you to determine how long the game will last, world size, human population, starting season, weather, hunters, type and quantity of prey, number of competing wolf packs, size of your pack, and which of the 40 individual wolves you want to play. Each wolf has characteristics such as age, sex, endurance, health, status in the pack, parents and the like. If you successfully survive one of these simulations you qualify for a degree in wildlife management. In fact, this product should be a core requirement in any school that teaches natural history.

Just as the natural world is a balance of life and death, warmth and cold, pleasure and pain, Wolf has moments of both exhilaration and frustration. It redefines the genre of Role-Playing as we gamers know it, yet it is *not* a game. We usually think of our games and simulations as pleasurable pastimes that amuse and entertain us. I was not happy watching my wolf die repeatedly in a simple scenario of searching for water. The scenario was set in a medium sized world, and even though I was half a screen away from a pond, I couldn't get there because the world boundaries dictated that the world ended halfway across that screen. If I had been in a desert I guess it would have been a mirage.

Although Wolf comes on a CD-ROM and has multimedia trappings, it requires nearly 600K of conventional RAM to run (a rather stiff requirement for an edutainment product with the potential to reach a wider market) and doesn't take full advantage of the speech and full-motion video capabilities of the medium. As I stated previously, the documentary material cries out (or is that howls?) for speech

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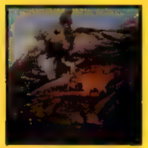
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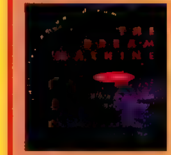

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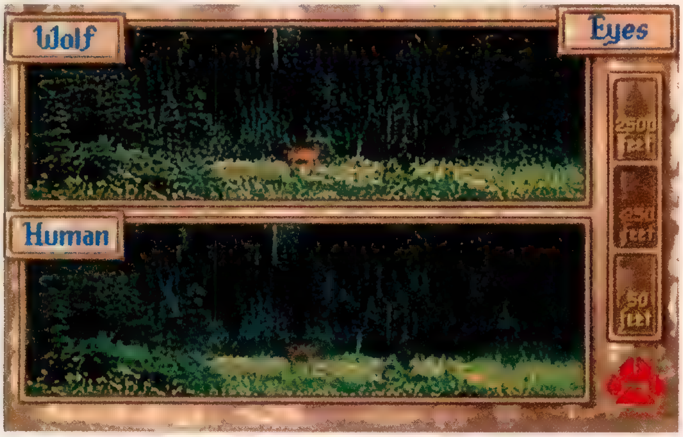
and film. A second CD full of that kind of material would be even better! Of course, with the extra time and costs necessary to put that in the product, we'd still be waiting for it to come out, and the price point would have to skyrocket. What was that about the balances in Nature?

Probably my greatest frustration with the scenarios in WOLF was the constant intrusion of man and machine into my world. Helicopters, hunters and airplanes shot my little guy so full of holes you could have used his pelt to strain bullets out of molten lead. Although man is the only real predator to the wolf, one gets the feeling that the designers were rather heavy-handed in making their point. On the other hand, Alaska insists on rebuilding caribou herds through a misguided policy of reducing the wolf population, and hunting wolves by both land and air is a common practice.



CAN YOU SEE WHAT HE SEES? The presentation of the background material is a little weak, but it does have nice touches. Here, you can compare human vision to the wolf's.

Nevertheless, the frustration that arises underscores the fact that WOLF is not a game, but a role-playing simulation that is both worthwhile for your children, and for the child that lies within each of us. WOLF is a product that allows us to see our shared world through new eyes...different, but related. In Barry Lopez' *Of Wolves and Men* he writes, "But if we are going to learn more about animals—real knowledge, not more facts—we are going to have to get out into the woods." WOLF takes you into the great outdoors.

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—Henry Beston, The Outermost House

THE EDITORS SPEAK

WOLF

RATING ✸ ✸ ✸ ✸

PROS A multimedia "edutainment" product that recognizes the true power of the medium—simulation. A novel concept backed up by solid execution.

CONS The presentation of the background material could have used some punch. Certain scenarios can be overly difficult.

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KNIGHTS of XENTAR
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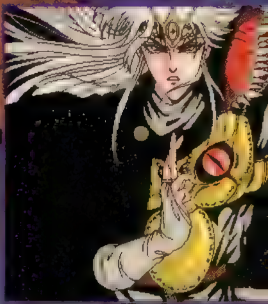
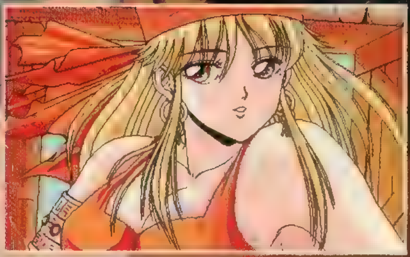
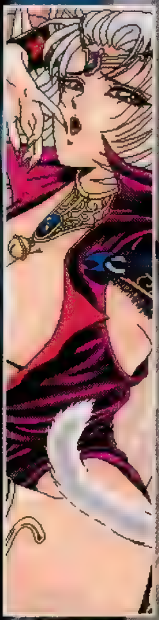
COLD STEEL



Our morally impaired young knight, thrust into a demonic neverland that was once peaceful Xentar, recruits a loyal friend and one beautiful sorceress in search of the legendary Falcon Sword - the only weapon a demon fears.





Our young hero's courageous deeds don't go unrewarded, as unabashed seductive maidens offer restful interludes for the weary warrior! Based on the Japanese hit movie and Number One PC game, Dragon Knight III, these gorgeous lasses will undoubtably thank their testosterone-laden hero in their own special ways.

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System : IBM compatible, CD-ROM or diskette version available. Requires a 386-SX (486 recommended), VGA graphics, conventional memory only, sound...

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NR 13

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On A Wing

A PYRAMID OF TEA SANDWICHES—TURKEY, HAM, LETTUCE, ON WHITE OR WHEAT TOAST—SITS on one silver platter. On the other sits a well-combed Kilrathi head. In between sit Mark Hamill, known to the world as Luke Skywalker from the *Star Wars* movies, and Ginger Lynn Allen, star of such mainstream fare as *Young Guns II* and the upcoming HBO movie *Fever*, but better known for her memorable work in some of the best-selling adult films of the 80s.

Under normal circumstances, the presence of any one of these elements—the stars, the severed head, the sandwiches—would command attention, even in a hotel room in Times Square in New York City. But these are not normal circumstances. From the next room come the sounds of WING COMMANDER III, and even co-star John Rhys-Davies (Sallah from the Indiana Jones movies) has been lured away.

I find Rhys-Davies sitting in a dim corner of the room, intense and wide-eyed in the glow of a 13-inch monitor, gripping his joystick tightly and cursing the Kilrathi bandits who keep eluding his fire. "I have been at it for eight hours," he admits during a lull in the action, in the famous baritone that won him two roles in the game. (He does double-duty as the veteran Confederation flyer known as Paladin and as the voice of the chief Kilrathi villain.) He points at Ginger Lynn, who has just appeared on the screen.

"It takes 30 missions before you even get to kiss her." He has the look of a man who is going for 50.

Meanwhile, at the next machine, WING COMMANDER creator Chris Roberts is explaining interactive movie-making to a reporter from *Forbes*. A reporter from *Time* looks on; *USA Today*'s representative takes notes. "The trick to telling a really good interactive story is that you want the player to experience everything you put in there...[but] the game shouldn't make decisions about what happens next. *You* should make the decisions." The reporters nod: they're eating it up. "Most of the interactive movies that have come out until now haven't been good,

His rebel days over, Mark Hamill learns some discipline as Col. Chris Blair (left). John Rhys-Davies looks like he misses Indy (below).

And A Player

Origin's *WING COMMANDER III* Heralds A New Era In Interactive Cinema

by Charles Ardai

and they haven't been very interactive. I needed to make a game in which I could be proud of every element."

Two feet away, the game's 11-minute introduction is playing. Even with the volume turned down, you can hear the soundtrack loud and clear, and it's a beaut: a symphonic overture full of dread and mystery that would do John Williams proud. Mammoth spaceships glide across the monitor; Mark Hamill's Colonel Chris Blair gets dressed down by Malcolm (*A Clockwork Orange*, *Star Trek: Generations*) McDowell's Admiral Tolwyn; the Kilrathi High Command slaughters a few human prisoners for the sheer sadistic pleasure of it; battles are fought, plans made, forces amassed; and even though it's all going on in a crowded room, on a small screen, in front of some pretty jaded industry observers, it feels like we're all 12 years old again, watching *Star Wars* and knowing, somehow, that the world of entertainment will never be the same. There's not a person in the room who can honestly say that the spectacle unfolding on the screens before us hasn't stirred the blood in his veins.

SNEAK PREVIEW
Game Still In
Development

In the center of the hubbub, WCIII designer Chris Roberts basks. He has every right to feel proud. He has pulled off the impossible yet again: he's topped not only himself, but the entire industry of which he is a part.

WINGS OF GLORY

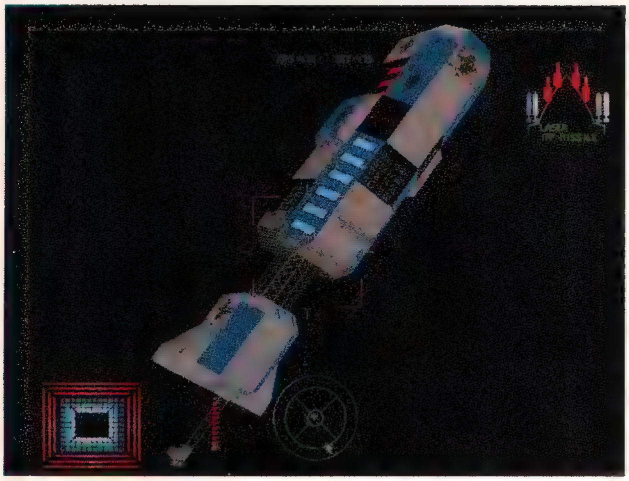
The Kilrathi-Human war is going badly—for the humans, that is. The hero of the saga's first two installments, Col. Blair, has been reassigned to a lumbering scow, the *TCS Victory*. His girlfriend, Angel, has been captured by the enemy. The Confederation has built a huge, planet-destroying ship called the Behemoth (sort of a defensive Death Star), but a traitor turns the plans over to the Kilrathi. Only a suicide mission into the heart of Kilrah can win the war for the humans now, and who do you suppose gets tagged for the assignment?

Yes, it's Col. Blair, performed on-screen by Hamill (in the best performance he's given in years), but controlled by none other than you. Blair has personal trials and dilemmas to face as well as the bigger problem of having to save the human race, and it's up to you to decide which set of problems to focus on. The decisions you make can mean the difference between life and death, both on a small and a grand scale.

Do you pursue a personal vendetta at the cost of winning the war? Or do you sacrifice your own needs for the greater good? It's your choice, and you make it not only by winning or losing a certain number of space battles (as was the case in the first two games), but by choosing how to behave both in battle and in the dramatic scenes that play out between battles.

With Angel away, two of your female comrades start coming on to you. Which, if either, will win your favor? Your old nemesis, Maniac (played by *Back To the Future*'s Tom Wilson), is serving under you now, as is Hobbes (voiced by GABRIEL KNIGHT's Tim Curry), the turncoat Kilrathi from WING COMMANDER II. Can you trust them with your life? Then there's the matter of how you respond when tragedy strikes: do you keep a stiff upper lip or drown your sorrows in the ship's bar? If you choose the latter, watch out—

Jason Bernard of *"Herman's Head"* gets bossy with Blair, too. The Confederation ace initiates docking procedures with a space cadet (right).



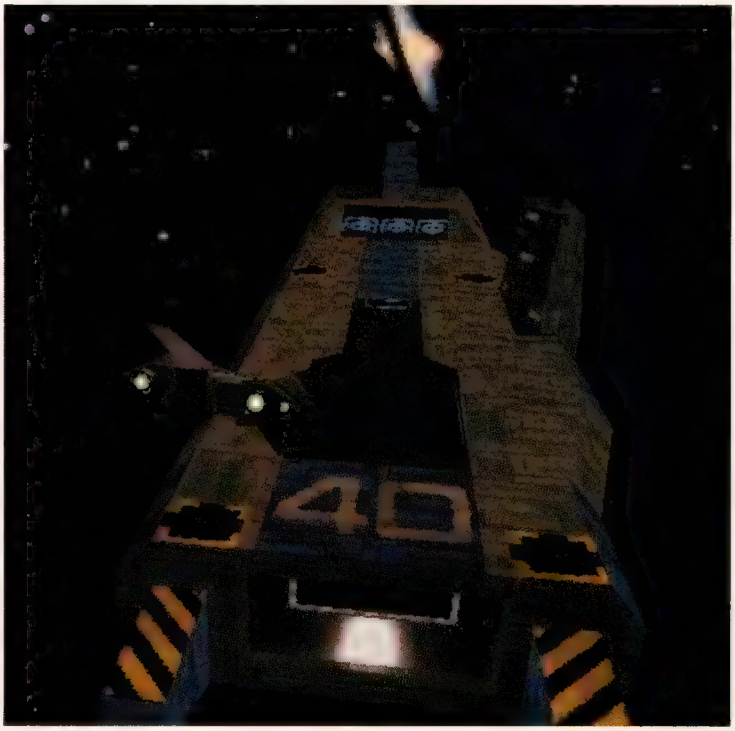
SHIP SHAPE Origin's designers have used state-of-the-art 3D graphics techniques to create Wing III's new space hulks.

you never know when the next alarm will sound, and if you've still got alcohol in your system at the time, well, it'll take a small miracle to keep you alive in battle. ("If you're drunk when you launch," Roberts says with obvious glee, "the joystick's rubbish.")

Gameplay within battle sequences has been kept consistent with the first two games, presumably so as to cause fans of the series a minimum of discomfort. You still view events primarily through the main viewscreen of your fighter, track enemies on a tiny radar screen, and communicate with friend and foe alike on a miniature video screen; pressing 'A' still turns on the autopilot and 'T' the targeting system, while 'G' still cycles through available guns and pressing both joystick or mouse buttons at once still launches a missile.

Where the game has changed substantially, other than in the quality of its visual presentation and the complexity of its storytelling, is in its combat AI. Both good guy and bad guy AI were scrapped and rewritten from scratch, meaning that the Kilrathi are less predictable and pattern-oriented than they used to be (though Roberts concedes that "a really good human player will always beat an AI") and that your loyal wingmen won't bite the galactic dust with the regularity and rapidity that used to be characteristic of them.

Hobbes still died within a minute of launch in my first attempt at playing the new game, but in all fairness this was my fault: I blew him up. Once I got used to the hardware Origin had brought to New York (including a couple of extremely sensitive joysticks, which added a lot to the gaming experience), I found myself blowing Kilrathi scum out of the sky just like in the old days.



LIGHTS, CAMERA... ACTION!

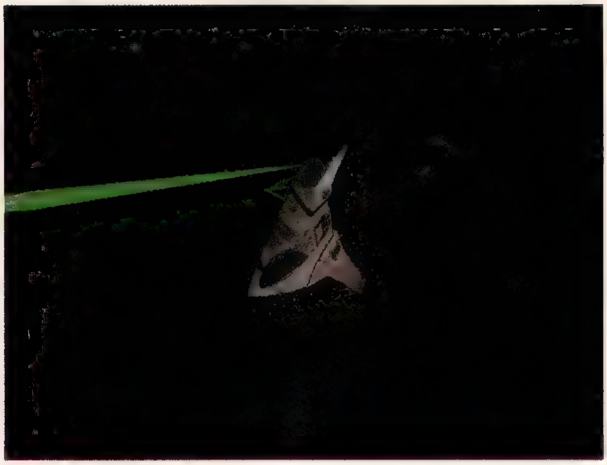
The game contains 50 missions, including four that take place not in space but over alien terrain, in the manner of STRIKE COMMANDER. In VGA mode, the battle action is extremely smooth and fast, though the graphics are a little crude. (That is, crude by this game's elevated standards—they're slightly better than the graphics in WCII.) In SVGA mode, the graphics are so good they'll make your eyes bug out, and the action doesn't slow down appreciably, even on a 486/33 machine, the slowest the game will support.

As usual for this series, the soundtrack is dynamically synchronized to the action, so it gets fast and furious when the action heats up, becomes portentous when disaster is about to strike, and calms down when the script calls for a quieter dramatic moment. The other portion of the soundtrack—the actors' voices—is equally well synchronized, both to the movements of the actors' lips and to the movements of the eight-foot-tall animatronic puppets used to bring the Kilrathi to life.

The sweeping theatrical gestures and hissing, *eeevilll* deliveries that most of the Kilrathi indulge in are a bit overdone, but this is, if anything, a directorial weakness, not a technological one. Aside from their hamminess, the Kilrathi look and sound entirely believable, which is something I had not been expecting. Similarly, the effects—ranging from outer-space pyrotechnics to the superimposition of the actors' performances on computer-generated virtual sets—are first-rate.

It would surprise me if, even with such stiff competition as **Access**' UNDER A KILLING MOON and **Sierra**'s KING'S QUEST VII, WING COMMANDER III weren't cited as the reason for many a hardware upgrade this holiday season. Even if you don't do anything to improve your machine's speed, memory, video card, or sound card, WC3 should be enough to finally get you to buy a CD-ROM drive if you've been putting it off (the game is only available on CD—in fact, it comes on *four* CDs, tying it with KILLING MOON for the title of "largest game ever produced"), or to upgrade to a double-, triple-, or even quad-speed CD-ROM drive if you currently only have a single-speed.

Apart from technical considerations, WING COMMANDER III is an uncommonly demanding game. A good player will have to hammer at it for 40 to 60 hours before reaching one of the game's two endings; a novice may find himself playing for 80 or even 100 hours, as well as seeing the game's "third ending"—Blair's death—more often than he would like.



WISH I HADN'T KILLED HOBBES All new AI routines mean that Kilrathi pilots will prove a much more formidable challenge.

The game's size is deliberate, of course. "A player pays around 90 dollars to buy it," says Roberts. "He'd be disappointed if he finished it in a night." This said, a built-in "cheat" feature will, if they can find it, give the battle-weary and the hopelessly inept the chance to get their money's worth out of the game. Roberts said that Origin will neither publish nor publicize the cheat, but that it will be there in the final release for easter egg hunters to scope out.

Make it all the way to the end and you've got a boffo climax in store—so big and so conclusive, in fact, that it is hard to imagine what might be left for WING COMMANDER IV. "Good question. I don't have that answer yet," says Roberts, who adds, "My next game is going to be in a different universe: fantasy, with lots of swordplay, that sort of thing."

In part because of the finality of the finale and in part because of production costs, which Roberts estimates at $4 million (the most ever spent on a computer game), WING COMMANDER III will stand alone—there will be no "add-on" special mission modules as there were for the first two games. Still, from what I've seen, I'd say that players are unlikely to feel unsated or inadequately impressed when the game is over.

GRABBING THE BRASS WING

"It's a bit like where TV was in 1946," says Rhys-Davies, a long time science fiction fan. "Soon you will be able to play a game like this and choose the actors for the different parts. You'll be able to say, 'I think I'd like to see my friend Karen Allen in one of the roles, and maybe Bogart for another.' That's the next step."

Perhaps so. But even if I had free choice, I doubt I could have picked a better cast for WING COMMANDER III than Origin has, or done better by them. The actors work well off of each other; the story works well off the action; the script's a real script; the music is real music; the game, as a game, is strong, and as a piece of cinema is—who would have predicted it?—even stronger.

It all makes quite an addictive package, not least of all to the actors who breathed life into it. At one point, I took advantage of another writer's pulling Rhys-Davies aside for an interview as an excuse to slide into his seat and take over his game.

"You're stealing my game!" he thundered.

"You're a gentleman to let me," I said.

"Don't think of it as my being a gentleman," he said. "Think of it as theft."

When I left, he was still playing.

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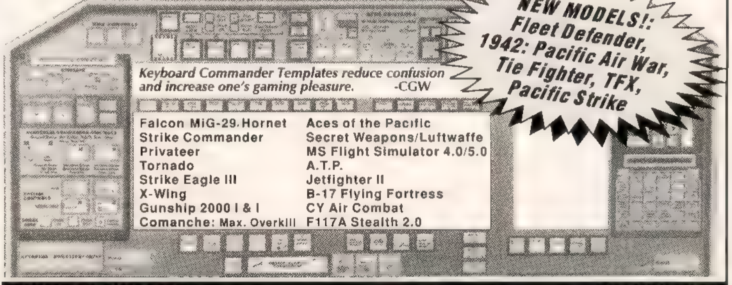

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Circle Reader Service #80

1,001 Arabian Firefights

Bullfrog's Magic Carpet *Is A Bazaar Spectacle Of Magic, Combat and Extraordinary Graphics*

by Ken Brown

LEGEND HAS IT THAT A POWERFUL SORCERER CAST A SPELL ON HIS PERSIAN RUG, PERHAPS TO CLEAN A SPOT LEFT by his Persian cat. Instead of the spot magically disappearing, however, the carpet floated in the air and proved strong enough to support the sorcerer's weight. Upon it, he could be whisked about the kingdom, even to different parts of the world, to right injustices, get a better deal on figs and dates, and snatch fair princesses from the arms of evil sheiks with one eyebrow. Another case of an accident that resulted in something useful.

The notion of a magical carpet brings great promise: unlimited mobility at a fraction the cost of conventional transportation (the camel), while giving the wizard a unique perspective on the world. You could say that computers do the same thing for today's technologically gifted wizards, computer gamers. Which is all the more reason to keep your cat off the keyboard.

I installed MAGIC CARPET on my personal magic carpet, and it transported me through a beautiful world where I battled evil wizards with powers both terrible and immense. I didn't snatch any princesses, but I did unleash my wrath on countless doomed souls, built several posh castles, and restored the world's manna to equilibrium once again. Oh yeah, and I reshaped the earth.

MANNA MAKES THE WORLD GO ROUND

The game begins with a nicely rendered, but choppy, 3D Studio animation... <ESC>. You are the apprentice wizard of a powerful sorcerer who died in a freak magic accident. The problem with the world, then as it is now, is there is some sort of imbalance of a precious resource: manna. In order to restore the world to equilibrium, you have to go out and make some manna. But manna doesn't just fall from heaven; it is present in most living things, including birds, men, demons, bizarre creatures, and, especially, other wizards. So, the idea is you have to "convert" (i.e., gleefully slaughter) these entities to separate their manna from their flesh. It's a nasty trade, but there are AI wizards or up to seven other human players on a network who are trying to do the same thing. The carpet business can be extremely competitive.

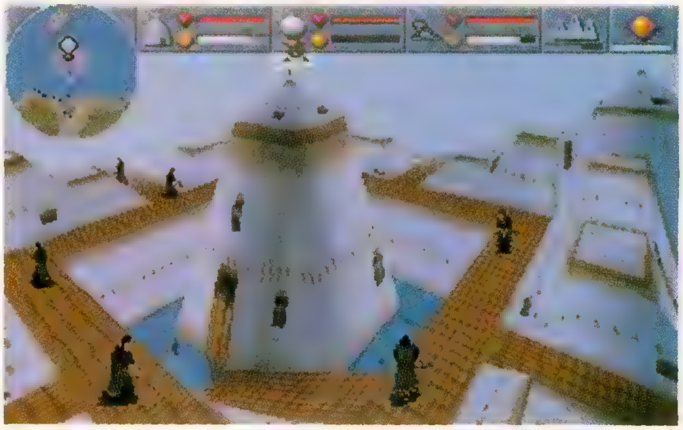
SNEAK PREVIEW
Game Still In
Development

You start off floating on your carpet looking at the grassy hills several feet below, wind audibly rushing past your ears, trees and mist shrouding the hills. As you take those first few tentative blasts forward and circle around the 3D, texture-mapped landscape, it feels like the first time you rode a motorcycle: "Whoa! THIS is cool. How do I brake?" You zoom out across the water and hear the ocean, while watching its waves bob up and down. You fly down the coastline at what looks like about 75 mph, marveling at the natural look and feel of the terrain, now fully grasping that you can fly *anywhere* in this beautiful world. But what can you do?

First, you build a castle. It doesn't look like much of a castle at first, but it'll do. The castle is your magical anchor in MAGIC CARPET, the source of your power and expanding symbol of your strength. Attack another wiz's castle and you'll weaken him. Atop your castle you'll see a banner flying your colors and a hot air balloon with a golden gondola. This is your manna harvester, ready for action.

I AM A GOD!!!

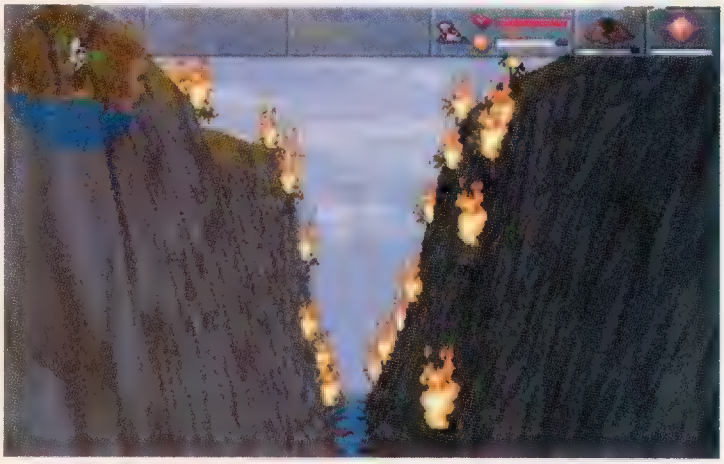
A secret button hidden on the magic



PALATIAL POWER Guards stalk the ramparts of a wizard's enormous castle, built from the bones of those killed for their manna.

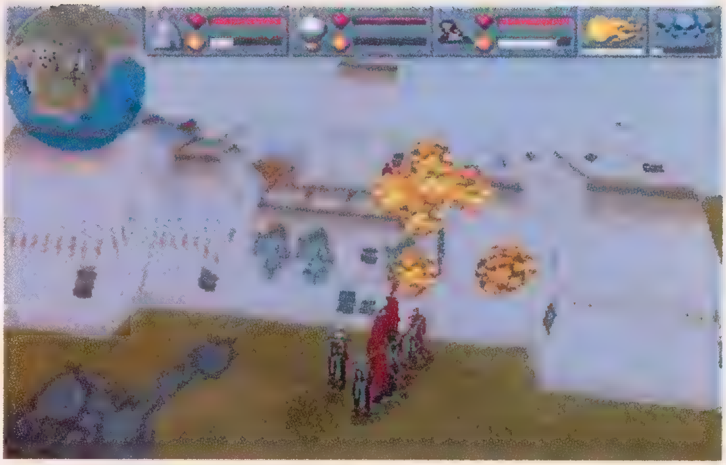
carpet, <ENTER>, opens an inventory of spells. Most of them will be inaccessible at first, but more spells will become available in time. The only weapon initially at your disposal is a fireball spell, so you click it. You then fly over villagers who seem to be innocently going about their own business, but who may actually be ruthlessly plotting to stain your carpet with your own blood. You left click the mouse in their general direction several times, and large balls of fire peel off in their direction, homing in like heat-seekers on any living animal in view. Ten or twelve shots later, golden balls of liberated manna are bouncing up and rolling downhill, some onto the water and floating. Right clicking sends shimmering white bursts towards the golden marbles, turning them white with an audible cue. This causes your balloon to disembark back at the castle, and it will soon arrive at the battle scene, magically vacuuming the manna for transport back to the palace.

The rest of the villagers, their Arabian blood beginning to boil, will shoot back at you with arrows. These don't have much of an effect, but collective damage from arrows, attacking birds, and other wizards' spells can kill you. It's a good idea to keep an eye on the health status bar in the top center of the display. Health will be restored after breaking off from an engagement, and special spells can also speed the process.



BETTER THAN BEGGAR'S CANYON This was a solid landmass a moment before. Magic Carpet enables players to fly through canyons of their own making—or go anywhere they want—in real time.

Fireballs are not only destructive to creatures. They can be used to start fires in the trees, burn down huts to attack occupants inside, and destroy buildings. When a structure is levelled it disappears in flames and makes a very gratifying burning sound, leaving only scorched earth behind. Although it's a little awkward at first to fly with the mouse and accelerate with the arrow keys, it doesn't take long to learn how to control your fire while staying both mobile and out of the reach of enemy defenses.



BURNIN' DOWN THE HOUSE Under attack from the player's fireballs and magical demons, an enemy wizard's castle begins to show damage.

Awesome spells become available later on in the game's many levels. One spell can level a castle in a hail of fireballs. Another one shoots lightning bolts instead of fire; a third creates a floating lightning source that attacks any creatures within a certain radius. But the most extraordinary spells are the ones that change terrain, and these babies make fire and brimstone sound like spit wads.

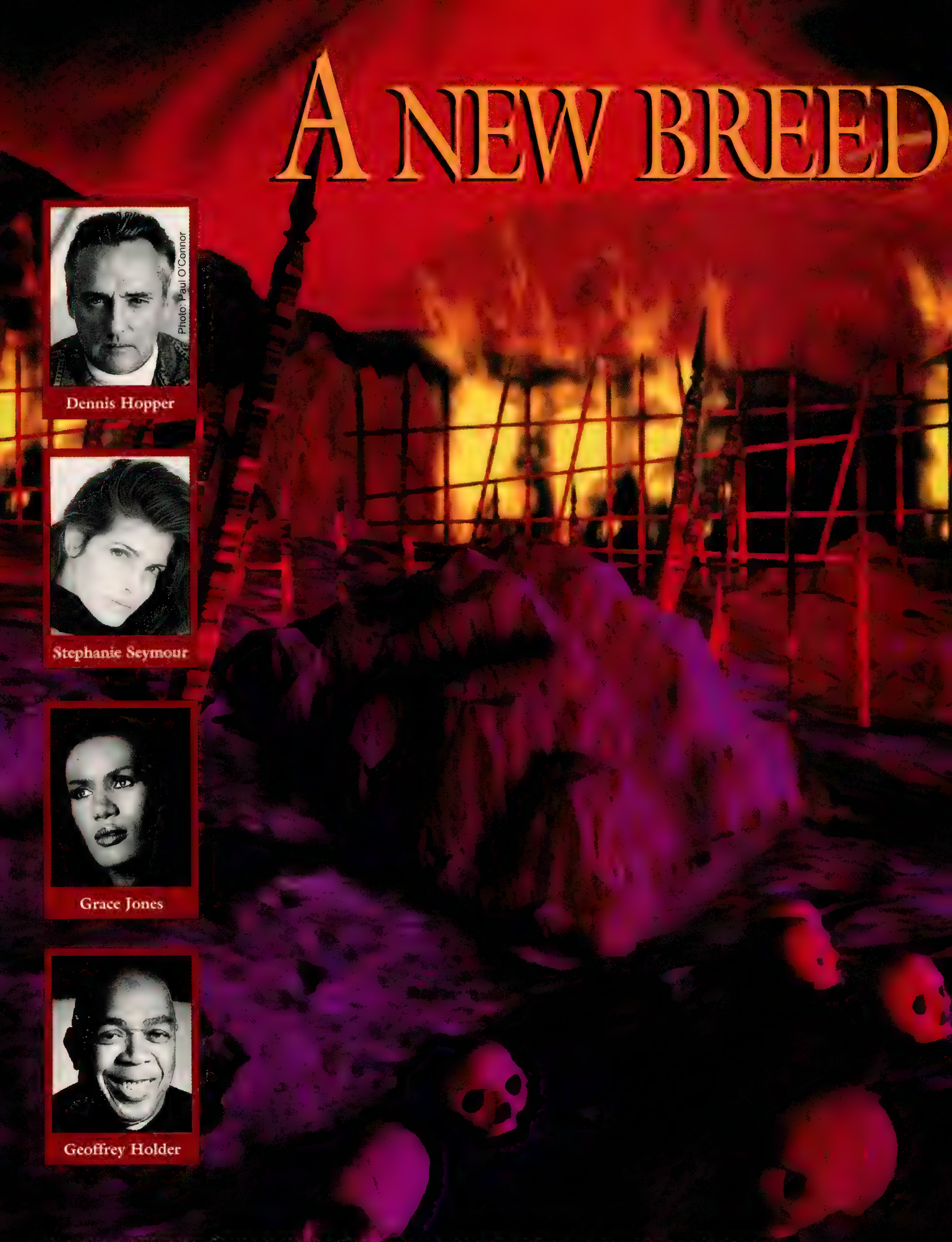
The two most outrageous powers in Magic Carpet are the volcano and ravine spells. The volcano will raise, instantly, a fractally generated mini-mountain that belches molten rock which tumbles at its feet and roll into the sea, releasing plumes of steam. It's a great spell to cast in the center of an enemy wizard's palace. The other spell is just as devastating, and from a graphic perspective, is unprecedented in the history of computer gaming. The ravine spell will carve a steep fault right through an entire island continent, cutting a crevasse down to the water and into the distance for several thousand feet. You can then fly through this new ravine and admire the details in the walls as they whiz by, trees dangling precariously on the edge, water swirling below, even tiny waterfalls cascading into the river. The power of the program to render such dramatic transformations so quickly, in such colorful detail, is simply astonishing.

MEANWHILE, BACK AT THE PALACE

If your manna-making efforts were successful, you'll be able to cast a few room-addition spells in the direction of your castle. With each new spell the palace sprouts larger crenelated battlements, more towers, and more guards to keep the fortress well-defended. A large fortress means you're a more powerful wizard, which comes in handy when you engage in wizard-to-wizard dogfights to defend your castle or attack another player.

If you play against the computer, you'll be interested to learn that **Bullfrog** employed an innovative method of adjusting the AI to the player's level. According to Bullfrog's Peter Molyneux, the AI opponent "learns" at the same speed you do, which makes it easier for novices to play the game. The AI will also learn new tricks from human players. If you devise a unique way of dispatching certain creatures, the AI may pick up on the trick.

Taken as a whole, Magic Carpet is an impressive and unique experience that should charm many gamers with its power and breathtaking graphics. It backs up the promise of the legendary magic carpet with a "bazaar" selection of magical spells, fierce combat and even multiplayer play. I'm going to play it again, even if I *don't* find any princesses to snatch.


A NEW BREED
Photo: Paul O'Connor
Dennis Hopper
Stephanie Seymour
Grace Jones
Geoffrey Holder

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* Actual screen shot.

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Circle Reader Service #184

Up Yours, Buddy!

QUARANTINE Is a Wild Ride In A Taxi Of Terror

by Mark Clarkson

REMEMBER THAT SCENE IN *ESCAPE FROM NEW YORK* WHERE KURT RUSSELL, AS THE TOUGH, ONE-EYED Snake Plissken, is pounding down an alley, pursued by bad guys? Suddenly, Ernest Borgnine pulls up in a battered Checker cab, throws a Molotov cocktail at the goons, and whisks Russell off to meet Adrienne Barbeau. Did you happen to say to yourself, "Hey, that'd make a great computer game!" No? Well, a quick look at QUARANTINE, the new first-person 3D shooter from **GameTek**, is evidence that somebody did.

Playing QUARANTINE is like playing DOOM from a car in a universe that's equal parts *Escape from New York* and *The Rocky Horror Picture Show*. The year is 2047. The place is Kemo City. Once merely a large, crime-infested city, Kemo has been converted into the world's largest prison by the faceless Omnicorp. Now it's stuffed with "crazed violent killer lunatics intent on killing anyone who is not a crazed violent killer lunatic." Dirty and gutted buildings line streets littered with barrels of burning refuse, dead fish and, of course, crazed lunatics. Everything is dark and foreboding. (Well, the park's not too bad, if you overlook the dismembered bodies dangling from the trees.) The city is surrounded by un-scalable walls fitted with gun emplacements. The roads and bridges are mined. Nobody's getting out of here.

QUARANTINE

QUARANTINE
GAMETEK

Price: $59.95 Floppy, $69.95 CD
System Requirements: IBM compatible 386 or better, 4MB RAM, VGA graphics, 20MB hard drive space; supports Sound Blaster and Ultrasound compatible sound cards.
Protection: Table look up
Designers: Imagexcel
Publisher: GameTek
Aventura, FL
(800) 426-3835

You are Drake Edgewater, criminal, serving your sentence within the 10-meter-high walls of Kemo City. You drive a cab—a modified 1952 Checker taxi fitted with hoverpads that skim you along above the ground. Your dangerous day's work is to cruise the mean streets of Kemo, looking for fares. And, O, what fares!

DOES THIS LOOK INFECTED TO YOU?

You never know who you'll pick up in Kemo. The typical fare would be a pasty fat man in studded black leather bikini briefs, fishnets, a hockey mask and fuzzy pink bedroom slippers who wonders, "Do you find me physically attractive?" Or maybe a guy in clown makeup who greets you with, "I've just eaten a whole can of beans and some uncooked pork, can I ride in your cab?" But don't worry: if passengers become too obnoxious, you can always use your ejector seat to hurl them, screaming, into the street in front of you, where you can run them over, just for good measure.

Your passengers may dress funny, but at least they pay well—if you get where you're going on time, a fare can net $500 or more. You'll need it.

Your cab takes damage from a constant barrage of bullets, bombs, and other vehicles. Crazed psychopaths stand in the road, lobbing Molotov cocktails at you. Crazed psychopaths leap from rooftops to shoot at you. Crazed psychopaths slam into you with their hoverbikes and monster hovertrucks. Crazed psychopaths...well, you get the idea.

You'll frequently need to wheel into a garage for repairs. While you're there, you can buy some extra armor from the Vend-a-Matic—steel plating at the very least, titanium or plastisteel if you can afford it. And remember to save some money, because you'll also need bullets, mortars, missiles, and two-stroke engine fuel. In Kemo City, the best defense is a good offense.

GUNS, GUNS, GUNS

It goes without saying that you've got to have guns. Your cab comes equipped with .22 caliber machine guns mounted in the headlights. Cruise into the closest

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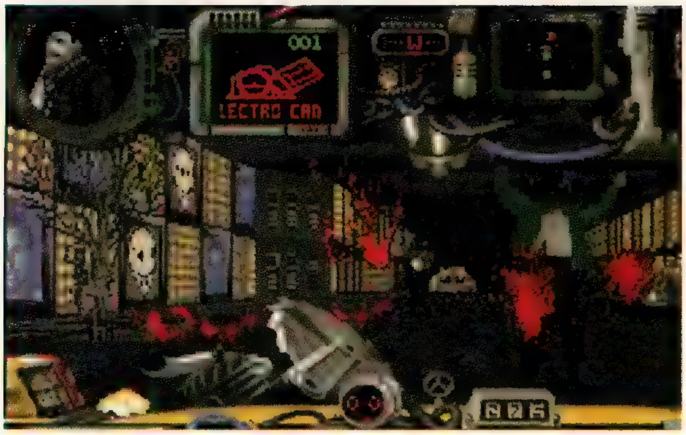
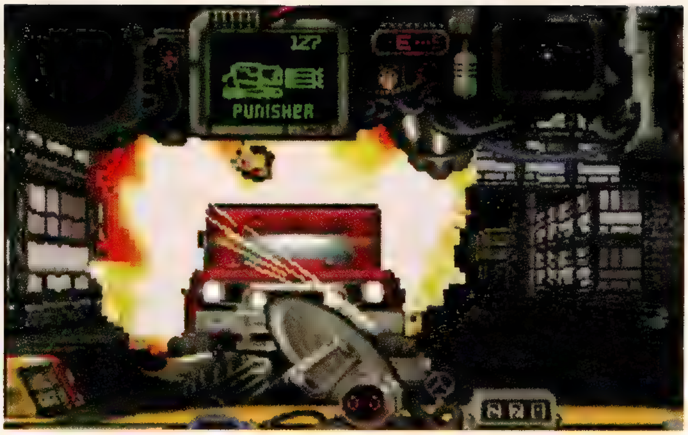


USE THE CROSSWALK! Another gun-toting pedestrian makes a mess of your radiator. That's what he gets for not looking both ways before crossing.



THE SEARS CRAFTMASTER 2047 A 4x truck gets the biting end of a hood-mounted rotary saw.

Weapon King™ and you can upgrade to the .33 or .50 caliber models. Not only will your kill ratio go up, but Weapon King™ throws in a free Uzi submachine gun, perfect for drive-by shootings out the side window.

Looking for something more specialized? How about a flame thrower, or a circular saw on a two-cycle gasoline engine, adept at slicing through armor or flesh. Grab some of those hood-mounted mortars, or a cluster of heat-seeking missiles in their own matching yellow and black-and-white checkered roof rack. Or my personal favorite: the 60mm rail gun. Firing 960 rounds/minute, it will make Swiss cheese flambé out of anything on the streets (only $849).

And don't forget your cab itself—not a very elegant weapon perhaps, but more than a match for any squishy pedestrians that get in your way. They won't even slow you down as they splatter, screaming, against your windshield.

There's a lot of screaming in QUARANTINE. In fact, the constant explosions, collisions and cries of anguish can get to be a little much. Ironically, the only sound you can turn off is the engine.

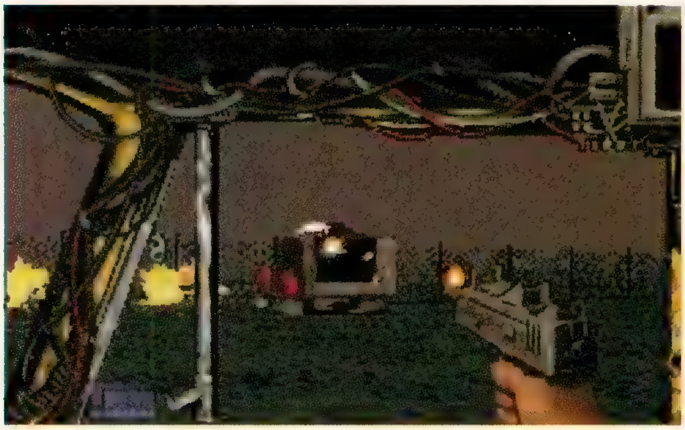
When you first pick up a passenger, you're shown a map of the city with your current position marked and a line indicating your destination. But it's often impossible to tell from the map alone, just exactly where a passenger wants to go. Is it to this street or that one? Does she want to go to the railroad yard, or to the highway on the other side of it? Luckily, your cab is equipped with a direction finder to help you home in on your destination.

The maps themselves are sometimes incomplete, misleading, or just plain wrong—an unmarked exit here, an unseen bit of road there. Just like a real cabby, you'll be better off once you've learned your way around town—where the short cuts are, which side of the Lumpy Mall the entrance is on, and so forth.

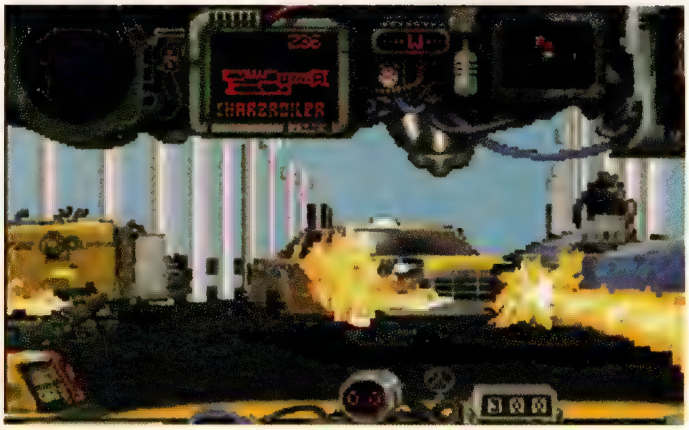
There's an underground afoot in Kemo city, working to throw down the powers that be. Mixed in with the regular fares (if you can call them regular) are a series of special missions devised to wreak havoc on Omnicorp and its lackeys. These missions range from blowing up TV stations to machine-gunning software pirates in the park (wasn't that a Spike Jones tune?) to delivering bags of jelly donuts to the railroad yard. Complete enough "special deliveries" and you're given the secret password to the next section of the city. Complete them all, and you just may get out of Kemo alive.

HOW AM I DRIVING? DIAL (800) UP-YOURS

It's easy to mistake a potential fare, his arm raised to hail a cab, for a crazed psycho, his arm cocked to hurl a Molotov cocktail at your windshield. At first, I ran over nearly as many fares as I picked up ("Oops—sorry, Sir!"). Watch your speed. It's easy to get going too



EXCUSIE THE UZI There are a hundred and one uses for the free Uzi included with any Weapon King purchase.



BROILED, NOT FRIED You don't need to take any guff from fellow cabbies. Just fuel up your Charbroiler flame-thrower before you hit the road.

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fast and blow right past your destination, or lose control and slam into a building or plunge off the end of a pier into Kemo's surprisingly clean, blue waters.

Maybe I'm picking nits here, but it seems to me that QUARANTINE lacks a certain verisimilitude. You always see the same skinny white man hailing you from the street, but when you stop to pick him up, you'll find he's magically transmogrified into a large black woman, or a clown. And no matter who you shoot or eject from the cab, it's always the same guy in a black ski mask and green trench coat who collapses to the ground. Bullet holes appear in the windshield as pedestrians shoot at you, but fade away again in a few seconds. You can drive through most small obstacles—power poles, fire plugs, etc.—like so much smoke. Trees and bushes do slow you down, but it's more like slogging through mud than crashing through the woods.

While QUARANTINE claims to need 4 MB of RAM, I was unable to get it running with less than 4MB of free XMS memory, which for most people means at least 6 MB of RAM. I experienced some hardware weirdness, as well. About one time in three, QUARANTINE failed to recognize my sound card, but starting the game over or re-booting the computer usually cured the problem. The CD version of the game includes a special live-action video sequence, but it wouldn't play on the video card in any of my machines. *[This was unfortunate, as the intro video is some of the funniest made-for-computer-game footage we've seen. What's more interesting, though, is that the video employs a new software compression technology, TRUEMOTION "S" from* ***The Duck Corportation****, that displays full motion, two-third screen video at a decent quality. Look for many more games to use TrueMotion and technology like it in the future. -Ed.]* What's worse, the game locked up from time to time, forcing me to reset my computer.

YUCKS AND GUTS

On a fast machine, QUARANTINE rocks along quite nicely. The landscape is huge, and there's lots to see as you learn your way around. And, while Ernie Borgnine tooled the streets of future New York listening to the theme to American Bandstand, the CD-ROM version of QUARANTINE includes 11 tracks of Australian alternative music—some of which is pretty good. If your tastes don't run to Aussie alternative, you can put your own CD in the drive and cruise to the tunes of your choice.

If another cab cuts you off, punch the enter key and your horn sounds. Stab <F10> and you'll curse "Up yours!" I find it all rather cathartic. But if you're allergic to toilet humor, sexual innuendo and blood-blood-blood, stay away from this one.

THE EDITORS SPEAK

QUARANTINE

RATING ✸✸✸

PROS Raucous, reckless, ribald—this one might appeal to CAR WARS players and DOOM nuts with nose rings.

CONS Small errors, inconsistencies, and a very loose interpretation of "driving" make this a slightly more bumpy ride than was intended.

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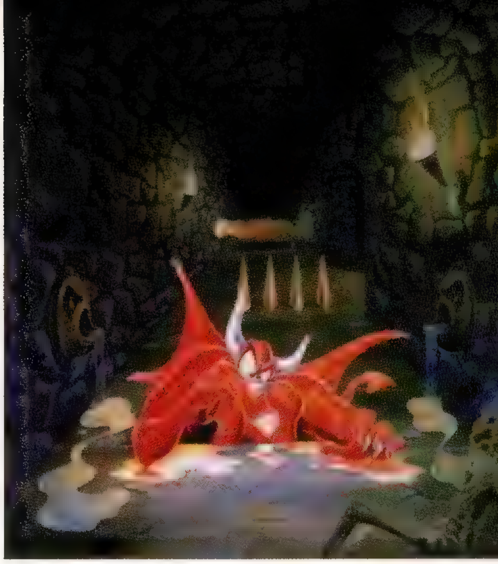
To Hell And Back

The Excruciating Misadventures Of Gremlin Graphics' Litil Divil

by Charles Ardai



Picture a watered-down Ultima Underworld populated by toons and you've got some idea of what's in store for you in Litil Divil. Picture a version of Dragon's Lair with lesser animation but greater control over your character and you've got the rest of the idea. Intended primarily for **Philips**' CD-I game platform, Litil Divil shows all the strengths and weaknesses of that medium: appealing graphics, simple controls, and as much plot complexity as a box of Wheat Thins.

Mutt Divil, a ne'er-do-well layabout from one of the seedier corners of Hades, has been chosen by his fellow demons to run the gauntlet through an obstacle-filled, five-level "Labyrinth of Chaos" in search of the "Mystic Pizza of Plenty." A flabby-jowled, fat little bulldog of a devil, complete with horns, wings and a pointy tail, Mutt undertakes his mission with a maximum of grumping and grouching.

Litil Divil

Litil Divil
And you thought you had a bad day!
PHILIPS
GAMES

Price: $49.99
System Requirements: IBM compatible 386 or better, 4MB RAM, VGA graphics, 30MB hard disk space; supports Sound Blaster compatible sound cards.
Protection: Code wheel (floppy version only)
Designer: Gremlin Graphics (Ireland) Ltd.
Publisher: Philips Interactive Media
Los Angeles, CA
(800) 340-7888

This is supposed to be half the fun: watching Mutt clutch his tattered dignity around him as he plows onward through corridors filled with pits for him to fall into, spikes for him to step onto, masks that spit at him or roast him with fiery breath, and so on. In fact, it is fun—for about ten minutes. Then you start grumping and grouching along with him: "If I fall into one more god-forsaken pit..."

Of course, by the time ten minutes have passed, or at most half an hour, you are supposed to have learned how to avoid these traps. Walk next to the masks and they won't spit at you; jump over the pits and you won't fall in. Unfortunately, though the controls are simple—you are limited to moving in the four cardinal directions and pressing two action buttons to jump or execute special moves—they aren't as sensitive as they ought to be. Getting Mutt to move one step, rather than half a step (in which case he raises his leg but doesn't actually move) or two steps (in which case he falls into a pit) can be an ordeal.

The pseudo-first-person perspective doesn't help. You've got a worm's-eye view of the Labyrinth's tunnels, which makes it hard to judge depth and direction and to time your actions properly. It gets worse: when Mutt is moving away from you, at least you can see hazards as he approaches them and do your best to dodge or jump at the right moment; but if you turn Mutt around and walk him toward you, you don't see the hazards until he is literally on top of them. Where is the fun in that?

To some extent, I suppose it is fun to see Mutt knocked about in a sort of Warner Brothers cartoon style. He is a cute character, after all, sort of a cross between Yosemite Sam and the Tasmanian Devil, and the animators have thought up enough torments for him that it's a while before they start repeating. And anyway, the tunnel scenes only account for half the game, the other half consisting of scenes that take place when Mutt happens upon a door and enters one of the Labyrinth's 30 or so puzzle chambers.

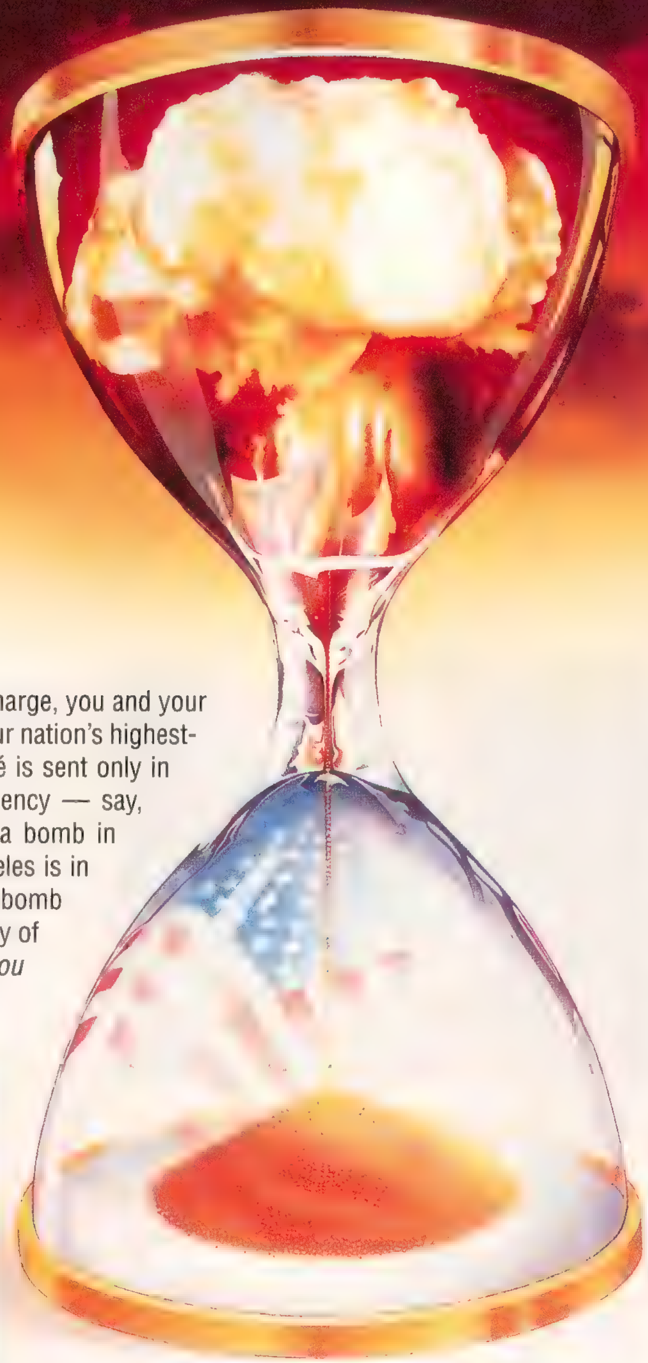
However, there are a lot of tunnels on each level, and Mutt has to go down every last one of them. Cute as he is, I got tired of watching him get spat at and skewered and fried long before I made it to Level Five. I also started to find the constant punishment he was made to take increasingly unfunny. And though the puzzle rooms, when you find them, do offer a respite from the endless punch-in-the-face gags of the tunnels, other than a respite, they don't offer much.

BETTER THE DEVIL YOU KNOW...

When you reach a door, it's either locked, in which case you need a key to open it, or it's not, in which case you kick it in. Inside, you either see a bed, in which case you've stumbled across the only place on that level where you can save; or you see a storeroom, in which case you're in the only place on a given level where you can trade some of the gold you've picked up in the tunnels for objects that will help you in the puzzle chambers; or you see a totally unfamiliar screen, in which case you know you are about to be drowned, eaten, stung to death, or otherwise mistreated while you try to figure out the rules of the particular puzzle you have wandered into.

The puzzles are a varied lot—some are easy to understand at first glance, others hard; some depend more on physical dexterity, some less—but all have the fla-

TIME IS SLIPPING AWAY.



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DOS CD-ROM

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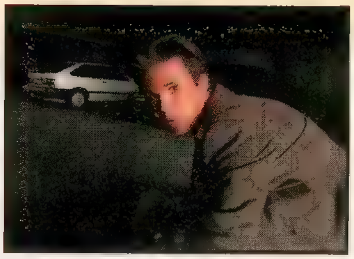
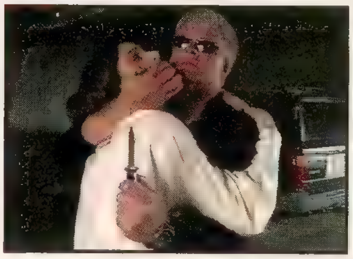
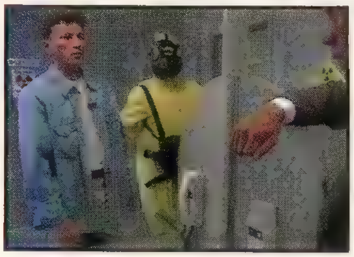


First-person dialogue interface



Cinematic realism



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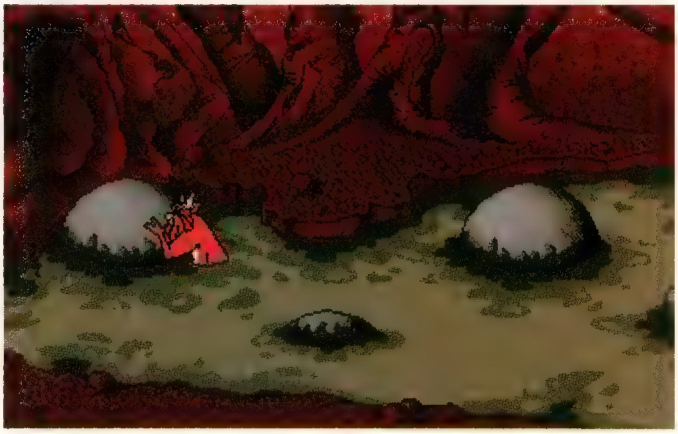
vor of a coin-op arcade game, circa 1986. Mutt has to cross a series of narrow bridges without being knocked off by bouncing balls. Mutt has to find an eyeball hidden under one of three skulls while birds flying by try to hit him on the head. There are sumo wrestlers who try to squash Mutt, sleeping dragons who need their nostrils plugged, and witches whose cat chases Mutt after a potion shrinks him to mouse size. In short, a lot of random running and jumping, with some mild combat thrown in for good measure.

In a laudable, but unsuccessful, attempt to turn the puzzle chambers into something more than mere arcade sequences, the designers make some of the solutions depend on the tools you purchase in the storerooms. Needing to have the right tool at the right time gives the player something more to chew on than just the question of when and where to jump, which is nice, but there's a downside: if you haven't been to the storeroom before reaching a puzzle room on a given level, you can find yourself at a severe (indeed, an insurmountable) disadvantage without even knowing it. I died 10 or 11 times in a room with a giant spider before I discovered that I couldn't win unless I had purchased a can of bug spray. Elsewhere on Level One, I kept dying after executing a series of carefully timed jumps across a chain of rising and sinking swamp rocks simply because I hadn't previously bought the bucket I needed to vanquish the flame-breathing mud monster at the end of the screen.



LIL' DIVIL LOST If you slip up in the arcade sequences, you can find yourself all wet—or much worse.

THE DEVIL KNOWS YOU'RE DEAD

Even if you have bought or otherwise acquired the tools you need, you can count on dying a couple of times in each puzzle chamber before you get the hang of the controls (the same buttons do different things in different rooms) and of what you are supposed to accomplish. Once you have figured everything out and have all the tools to do the job, you can still expect to die a few more times unless you have the nimble keyboard style of Vladimir Horowitz and the coordination of a Flying Wallenda.

Of course, Mutt is a devil, so dying in a puzzle chamber merely means getting booted out into the corridor, where he is free to re-enter and try his luck again or to explore other portions of the level instead. Die enough times, though, or spring enough traps in the tunnels, and poor Mutt's life meter drops to zero. At this point, the game takes a turn for the bizarre: Mutt keels over and is dragged off-screen by an obese creature called "The Entity" who then proceeds to torture Mutt in one of three ways—stretching him on the rack, impaling him on a spiked seat, or perforating him in an iron maiden.

If you are starting to squirm in your seat by this point, you are not alone. The undercurrent of light sadism in the game disturbed me a good deal, but I only realized how genuinely unpalatable I found it when I finally arrived at the torture scenes. I know it's just a cartoon, of course, and I am not one of those ninnies who would like to see cartoons bowdlerized in the interest of protecting children from the Evils of Violence, but there is a difference between violence and sadism, and this game crosses the line. A trip through the tunnels, watching Mutt get battered from left and right, really can be excruciating after a while. And though the puzzle sequences tend to be more innocuous, the calm-as-can-be torture scenes that are the price of failure made me think twice about the designers' sense of humor.

A BRIDGE TOO TREACHEROUS In order to find the Mystical Pizza of Plenty, your lil' divil must bash his way past numerous enemies, like this grinning green golem.

That Litil Divil is frustrating to play due to less-than-responsive controls and occasionally unclear rules is regrettable; that it is a throwback, in gameplay, to the days of Congo Bongo and Frogger is unfortunate. But every generation needs arcade games to play, and if the worst you could say about this one were that it doesn't live up to its promise, it wouldn't be so bad.

What makes Litil Divil distasteful is that the one thing it does really well—present little animated vignettes—it tarnishes by indulging in a kind of relentless meanness that leaves one curling one's lip when one should be smiling. Mutt Divil is an entertaining character; he and the player both deserve better treatment than they receive here.

THE EDITORS SPEAK

LITIL DIVIL

RATING ✸ ✸

PROS First-rate animation of a devil and his misadventures.

CONS Some of those misadventures only a sadist would enjoy—and even a sadist won't like the old-hat gameplay.

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Don't Play This Game Alone

Origin Adds Multiplayer Dogfighting To The Catfights In WING COMMANDER: ARMADA

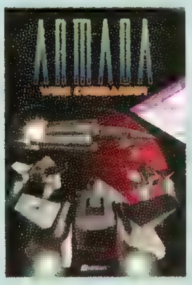
by Martin E. Cirulis

FOR YEARS NOW, SPACE COMBAT FANS HAVE SEEN THE EVOLUTION OF ONE OF THE BEST SPACE OPERA MILIEUS since the old pen 'n paper days when TRAVELER was born. **Origin Systems** started the ball rolling with the legendary WING COMMANDER, a game revolutionary on many fronts, not the least of which was the creation of a coherent galaxy to serve as a backdrop to its endless starfighter duels. In the tradition of ULTIMA, each new WING COMMANDER had two goals: the first being the refinement of combat and graphics, and the other, somewhat subtler, to continue the story of humanity locked in life-or-death struggles with a fearless race of catlike warriors. Fortunately, it seems that *Homo sapiens* have been as valiant as Larry Niven's lawyers have been forgiving. Each new product offered some new insights into your fearsome foe, or at least let you get your hands on some hot new Confederation technology. Slipping into the cockpit of new fighter designs made a grin spread slowly across your face, especially when the foe scattered ahead of your fearsome weapons. Of course, that smile usually turned to a grimace when you encountered the Kilrathi answer to your new toy. No matter what, though, one could always be fairly certain that a WING COMMANDER product would be worth the money, since the worst case scenario had always been "Just more of the same," and that wasn't bad at all.

THE LAST STARFIGHTER

At first glance, ARMADA simply attempts to add a strategic wargame to the WC universe, but as you delve farther into it you realize that perhaps the wargame was a veiled excuse to test new graphic and communication technologies. Your hand begins to itch as you start exploring the human-to-human options and realize that here, finally, is the chance to find out who is the best starfighter pilot on the block.

WING COMMANDER: ARMADA



Price: $59.95

System Requirements: IBM compatible 486 or better, 4MB RAM, 15MB hard drive space. Supports DOS 6.0, DoubleSpace, Hayes-compatible modem, NetBIOS, 256 color VGA, Ad Lib, Sound Blaster, General MIDI MPU-401. CD and floppy versions available.

# of Players: 1-2 (network, modem)

Protection: None

Designers: Whitney Ayres, Jeff Everett

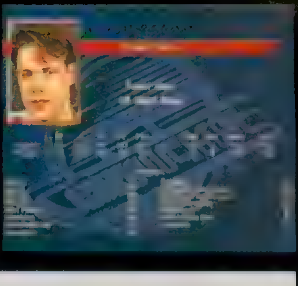
Publisher: Origin Systems
Austin, TX
(800) 245-4525

The manual makes a small attempt to interest you in "The Gauntlet," but in reality, this aspect of the game is just the traditional WC "simulator" you usually find in the practice area of other WCs. You start out in a light fighter of either human or Kilrathi design and must face wave after wave of enemy fighters, which increase in number and weight-class until finally destroying you. It's SPACE INVADERS with a serious attitude, but wears thin after a while to all but the most committed fighter jocks. This aspect of the game would soon gather dust if it weren't for the fact that the communications suite allows you to duel another player or team up with another pilot against the computer hordes.

What meat there is in this package is in the strategic game referred to as "Armada." Here a player starts on one side of a large cluster of worlds with one planet bearing a mine complex and shipyard, and a single carrier equipped with only two light fighters serving as an initial exploration and conquest arm. The game functions as a simplified version of SPACEWARD HO! in that the only resource is minerals, each world having a set al-

Intense 84-game seasons full of drop passes, fake shots and dropping on 'D', take their toll on the players. Good thing you can trade for fresh bodies when the old timers go down.

SCOUTING REPORT



Updated team rosters give you the lowdown on all the off-season moves. Current player ratings tell you who is busy tearing it up and who is as cold as the ice you're skating on.

There's nothing like throwing a few hip checks to introduce your opponent to the boards. But don't get called for the penalty or he'll go one-on-one with your goalie.

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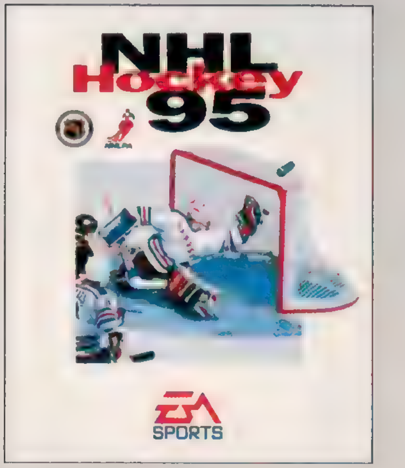

EA SPORTS

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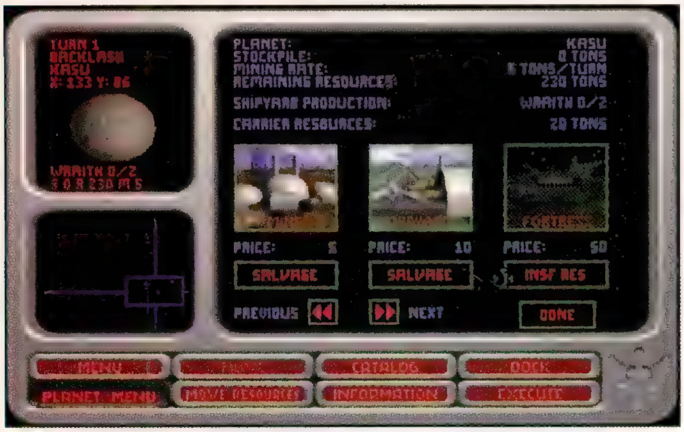
It's in the game.

lotment that must be extracted by a facility. The only use for your mineral wealth is the construction of facilities or fighters.

As in SPACEWARD HO!, your Carrier is important, not as an extension of force to be reckoned with, but as a construction vehicle to be protected at all costs. Planetside facilities, mines, shipyards and fortresses can only be built when your Carrier is in orbit and loaded with the appropriate mineral tonnage. Fighters themselves can travel from world to world under their own power, so the traditional role of the Carrier is negated. In fact, the real importance of the Carrier is to serve as a kind of "King" piece in the game. Whoever destroys their opponent's King wins automatically. Fortunately, only heavy fighters carry the necessary torpedoes to harm the capital ship, and since these fighters take the longest time and most resources to produce, you can feel fairly safe exploring and setting up mines for the first ten or so turns.

There are no other capital ships available in the game, and you cannot build other carriers. This and other logical shortcuts make the Armada game somewhat superficial, to say the least; an expanded version of this game called the "Campaign" is basically just a best out of ten Armada games.


TURN 1
BACKLASH
KASU
X: 333 Y: 86
WRAITH 0/2

PLANET: KASU
STOCKPILE: 0 TONS
MINING RATE: 5 TONS/TURN
REMAINING RESOURCES: 230 TONS
SHIPYARD PRODUCTION: WRAITH 0/2
CARRIER RESOURCES: 20 TONS

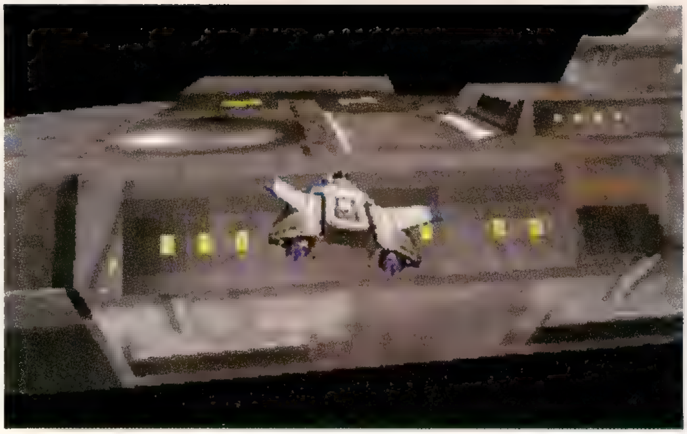
PRICE: 5
PRICE: 10
PRICE: 50

MASTER OF OUTPOST, HO! Resource management in the strategic portions of ARMADA is a simple matter of mining and building ships and fortifications.

Those hoping for some sort of real chance to inhabit the Admiral's chair in the WC universe are no doubt going to be disappointed, but all is not lost. Instead of dry, number-crunching combat resolutions (though this option does exist for the die-hard accountant-types out there), the player must fight out each combat encounter in the hot-seat of one of the fighters involved. All combats occur when ships from opposite sides inhabit the same star-system; but no matter how many fighters are in the area, only two from each side enter combat at any given time. The rest enter as fresh reinforcements when the active combatants meet fiery ends. This interesting twist to combat both continues the flight-intensive aspect of WC games and allows an interesting clash between strategic and arcade skills. A fine joystick jockey can pull victory from the mandibles of sure doom if faced with a Montgomery with a distaste for sweat and a strained wrist.

THE THRILL OF THE HUNT

ARMADA is at least the graphical equal of any space action game on the market, if not the best-looking starfighter sim around these days. Though previous entries in the WC series were always top-notch graphically, the high-water mark has just been raised again. Ships move smoothly and quickly on a 486 class PC, but now the images maintain their smooth lines and coherency at almost any range, distorting only at the point of impact. Long-time fans of the series can remember how capital ships, while beautiful and clean at a distance, became an incomprehensible mosaic when you tried to strafe close in. Many a career has been cut short by slamming into the side of a suddenly indistinct cruiser instead of blasting neatly over its bow. Those days are over: now, you can actually fly between the runways of a carrier using its own hull to block shots from defensive batteries! It's a nerve-racking and dangerous stunt to be sure, but thanks to the incredible graphic precision, it's now a possibility instead of a Death Star dream.



LOOKIN' GOOD! ARMADA's vastly improved ship detail is evident in this chase view of a Confederation Arrow on final approach to a carrier.

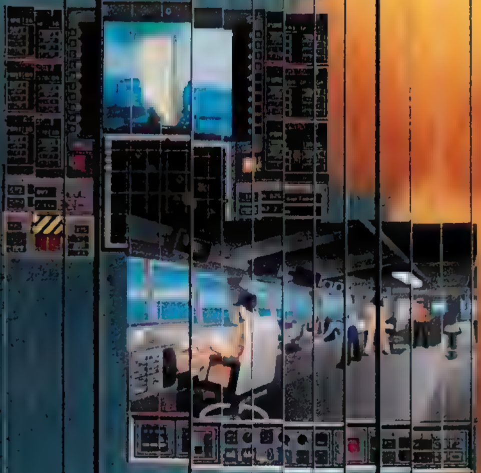
Another thrill of the new visual splendor is that you can actually see your shots hit an enemy ship's shields first, lighting them up with crackling blue fire stunning enough for a Next Generation effect. If you are close enough, you can actually see your shots striking the hull of your opponent's fighter after you pound his shields down, debris flying off in greater and greater chunks until a final cinematic explosion occurs. All the while the game careens along at high speed with multiple ships on the screen.

ARMADA further distinguishes itself in allowing all aspects of the game to be played against a human opponent via a NetBIOS network, modem or even the marginally playable split-screen technique, as well as allowing you to use WAV files of your own creation to customize your taunts and radio chatter. The game functions beautifully across a network or by direct link, subject only to the usual foibles of phone line connections in modem mode. Not since the days when I spent far too much dough playing AIR WARRIOR on GEnie have I experienced the same level of exuberant air combat intensity.

HIGH TECH HORRORS

But all is not sunshine and furballs in the land of ARMADA. The great thing about the earlier installments of WING COMMANDER was how everybody else flew around you, friends and foes alike. The enemy would fly strategies reflecting the strengths of their fighters: heavily armed and shielded fighters would try and lure you into a straight-on duel, leaving them dented and you dismembered and dispersed if you were foolish enough to fall for it; light fighters would make a quick

WE REGRET THE APPEARANCE OF THIS AD, BUT THE MILITARY INFORMATION IN THIS NEW GAME HAS ONLY RECENTLY BEEN DECLASSIFIED.



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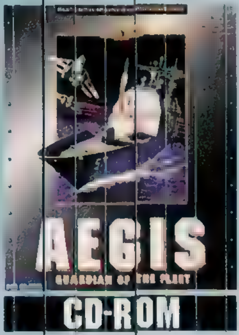

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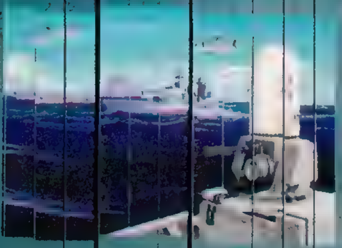

AEGIS: #1 Naval Simulation CD-Rom
PC Data, May 1994

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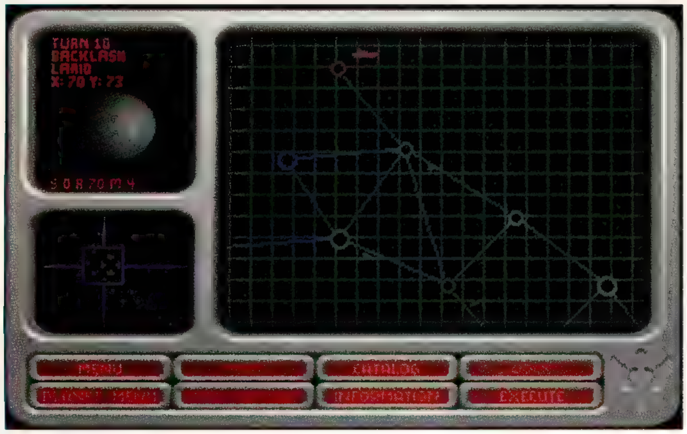
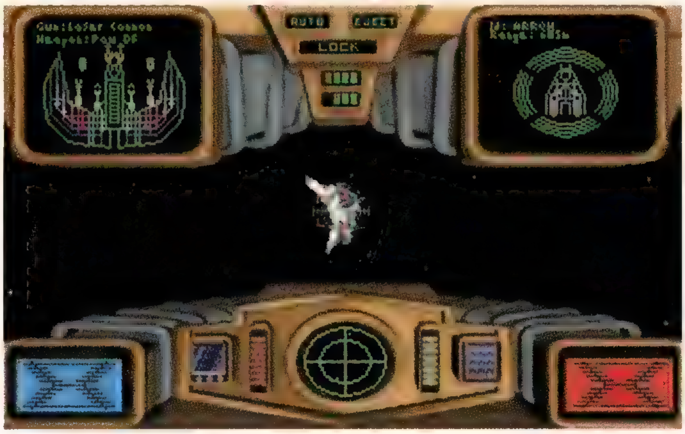


BATTLE LINES DRAWN While the player's fighters use jump routes between planets, a prize enemy carrier orbits at top.

pass and then try to jump on your tail, or snipe away while you were busy with another target. Your own wingmen were actually good enough to steal kills out from under your guns, and certainly they were capable of engaging and destroying the enemy with some modicum of skill.

Well, for some unfathomable reason, the folks at Origin have decided to rip out all these tried and true routines and give us the Forest Gump of flight AIs instead. Imagine my dawning horror as I discovered each and every fighter, of both races, fights almost exactly the same way, regardless of type, damage, or even your own behavior. Apparently the tactic *du jour* is a short pass followed by an afterburner turn, again and again and again, until death do you part. Computer pilots will even refuse to follow you and blast away from behind as you fly leisurely, in a straight line, admiring the stars. Changing the skill level of your opponent only shortens the length of the firing pass, making it harder to draw a bead on your target, nothing more. Even your wingmen have to follow this pattern, so they are now useless enough to have the LucasArts Wingman Academy button on their jackets. In a fight where you have been destroyed already and you refuse to take control of another fighter, the computer can have two light fighters go around and around for over 15 minutes! The flaw is so serious that if it weren't for the multi-player mode the game would be nearly useless.

This problem is exacerbated by a subtler problem with the series in general: more has been confused with better. Instead of keeping track of improving fighter technology and its implications for gameplay, designers are seemingly content with bigger guns, stronger shields, faster engines and quicker recharge rates. The balance of a competitive game is a finely-tuned thing; any changes have to be carefully considered.



ALL BEAUTY, NO BRAINS? This stunning Kilrathi cockpit is another example of ARMADA's crisp, detailed graphics. Unfortunately, the enemy AI isn't half as sharp.

While I, as a player, love having a more powerful ship to fly, I begin to despair when I see shields that are so strong and recharge so fast as to rob the game of any hard tactical choices. In the old days when a shield started to buckle you had to break off quickly and slow your rate of fire till the weak side recharged. Now, as long as the rain of fire is not continuous (and given the way the computer flies this event is extremely rare), and if you are in anything above a light fighter, you can virtually ignore the incoming shots and blithely fire away because everything recharges so darn efficiently.

Here's a concept for all you fledgling game designers out there: an increase in regenerating armor is not countered by an equal increase in firepower because, while defenses are passive, shots will miss more often than not! Any flight sim where a player can deem the action at his back irrelevant has serious problems.

KITTIES ON YOUR SIX!

It is a shame ARMADA has these flaws because it is such a beautiful looking simulation. I found it to be remarkably bug free, except for the fact Origin has traded memory manager woes for joystick calibration routines from Hell. Either the game loves your joystick and port arrangement or it insists they do not exist—there is very little middle ground. The strategic game, though lightweight for the experienced wargamer, would still be very enjoyable if the computer could fly like previous WC offerings.

Fortunately, ARMADA does offer the multi-player aspect, and thus the game benefits greatly from Martin's First Law of Networking which states: "The lameness coefficient of any computer game is reduced in geometric proportion to the number of players networked into it." Playing this game against a human being alleviates most of its flaws and makes for a very pleasurable experience. At the time of this writing there is a rumor that Origin is thinking of offering an expansion disk, allowing for six players to fight against each other. This could be crucial to this game's success, especially if a patch to return the flight AI to traditional WING COMMANDER values is included.

As it stands, if you have someone to play ARMADA against regularly, then this is a very enjoyable game, stunning to look at, that should keep you flying and cursing for many hours. But if you figure prominently in MicroProse demographics and thus, are a lone gamer, this game will not amuse you long after the glitz fades.

THE EDITORS SPEAK

WING COMMANDER: ARMADA

RATING ✸✸✸

PROS Beautiful to behold, and a hoot to play head to head.

CONS Don't play this game alone! In addition to a certain imbalance in the shield/firepower ratio, the AI is as dumb as a stump. Joystick calibration is very flaky.

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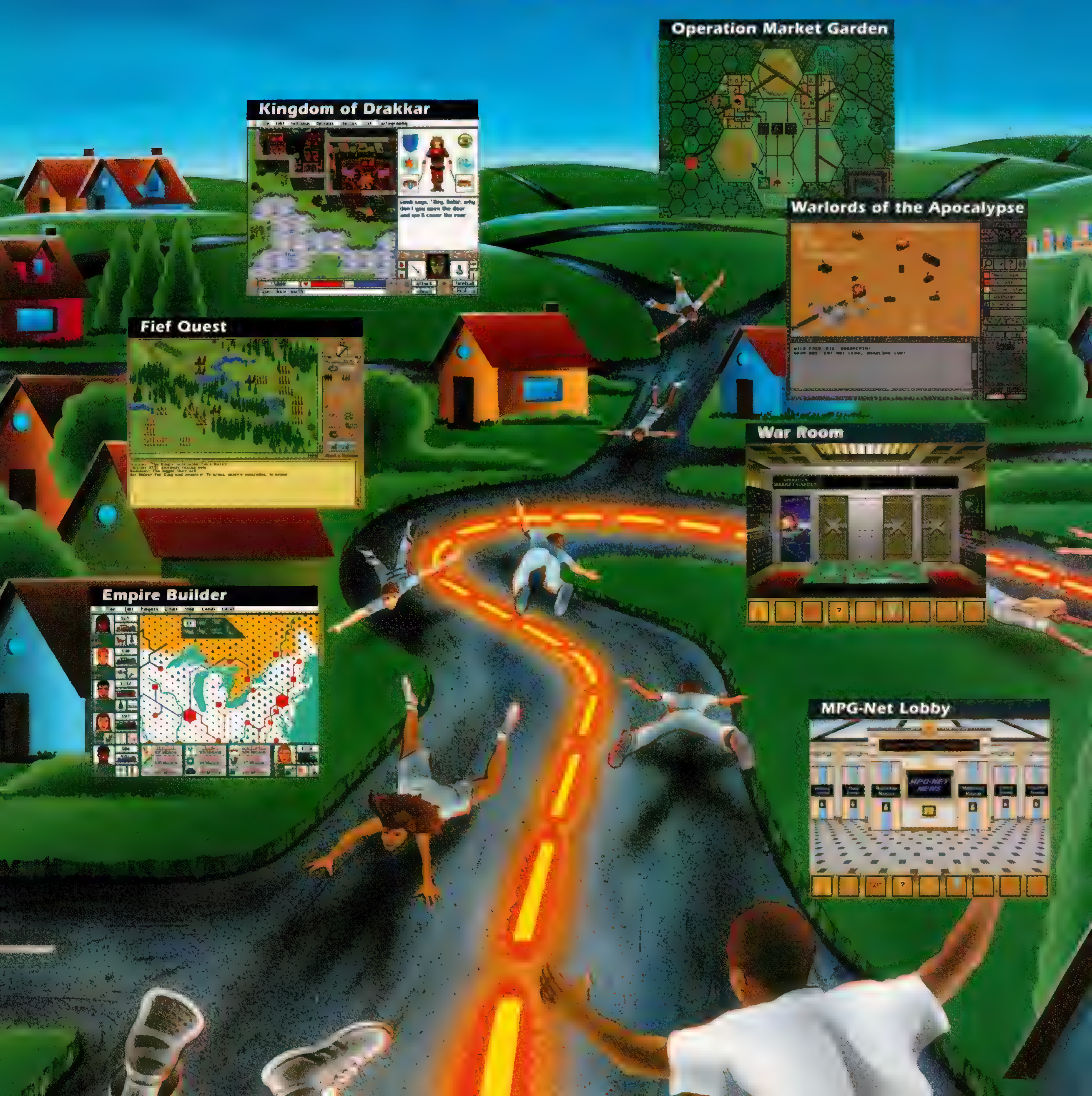
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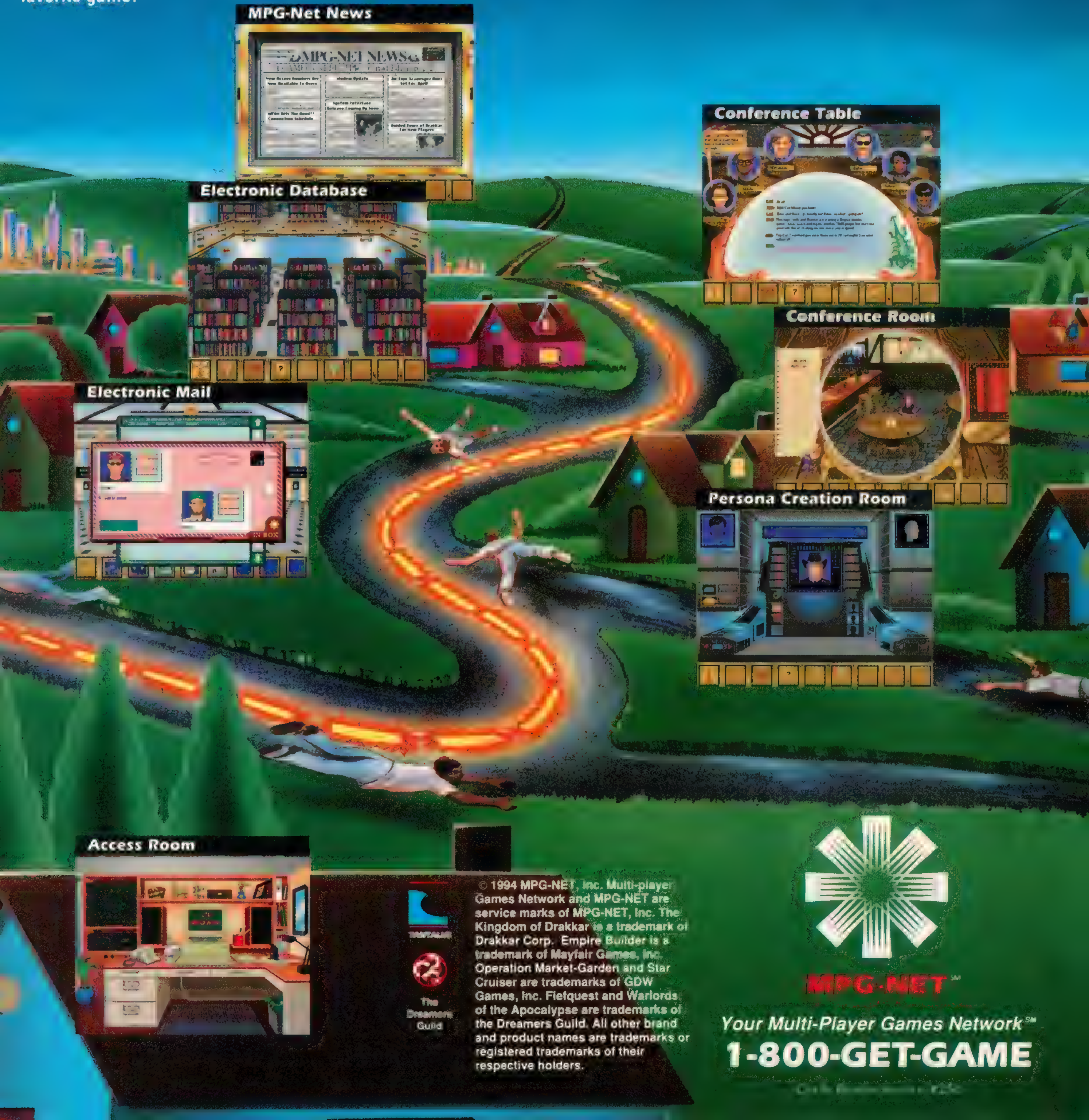
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Lemming Death Squads?

Virgin's Cannon Fodder *Puts the "Cute" In "Execute"*

by Jason Kapalka

"Kill, kill, kill, kill, kill..."
—Coriolanus, V, vi, 131,
by William Shakespeare

The Bard knew there came times when gentle poesy was not enough, when iambic pentameter must give way to the savage rhythms of violence. The same holds for computer gamers: as there is occasion for King's Quest and Civilization, so there comes a time for **Virgin**'s Cannon Fodder. A time to kill, a time to die. A time to cry havoc, and unleash the lemmings of war.

Lemmings of war? Yes, Cannon Fodder has the feel of an expansion set for **Psygnosis**' popular game of fatality-prone mini-mammals, albeit an expansion set designed by Tom Clancy, in which the little critters trade their robes for fatigues and swap their suicidal tendencies for some decidedly homicidal urges.

Cannon Fodder

Price: $36.99
System Requirements: IBM compatible 386-33MHz or better, 2 MB RAM, VGA graphics, 10 MB hard drive space, mouse; supports AdLib, Sound Blaster, and Roland sound cards.
Protection: Documentation check
Designer: Sensible Software
Publisher: Virgin Interactive Entertainment
Irvine, CA
(800) VIRGIN7

Taking charge of a small squad of not-so-crack soldiers, the player shoots, bombs, and shells his way through 24 missions full of enemy grunts, tanks, choppers, artillery and snow mobiles, not to mention a few expendable civilians. If the look is Lemmings-esque, Cannon Fodder's gameplay is reminiscent of a cheerier, simpler version of Syndicate—Syndicate Lite, if you will.

Like Syndicate, Cannon Fodder is a real-time, bird's-eye view, action/strategy hybrid that requires you to control several heavily-armed combatants simultaneously—normally two to four, but sometimes as few as one or as many as six. Your goals generally involve killing a great number of enemy soldiers and blowing up large tracts of real estate, so quick reflexes and a steady mouse hand are as important as your overall battle tactics. Obedient little jarheads, your troops will march single-mindedly after their ranking officer, aye, even into the valley of the shadow of death, or rather more commonly, into quicksand, chasms, minefields, and pungee-stick traps.

The slightly-angled overhead view scrolls smoothly to follow your minuscule soldiers around, and a static map of the entire combat area is but a click away. As the title suggests, Cannon Fodder's troops have significantly less staying power than their counterparts from Syndicate, generally perishing at the drop of a grenade; and where the earlier game had strategic and resource-management elements, Cannon Fodder ignores such issues, leaving the player free to concentrate on non-stop slaughter. Oops, I mean, "neutralization of enemy assets."

Labeling Cannon Fodder as a "cheerier" version of Syndicate is a bit misleading. The 320x200 VGA graphics eschew the dark cyberpunk look in favor of bright, cartoonish images, but there's still plenty of blood, and your little troopers have an astonishingly high mortality rate—it's not uncommon to lose several dozen in the course of a single mission. However, there is a tendency to chuckle before you start screaming obscenities at the bazookateer who's just blown five of your guys into lasagna once again. Call it "cute carnage."

BASIC TRAINING

Opening the box, you'll release a great whoosh of air, along with a tiny 16-page manual and three disks. Most of this is superfluous, including the disks. You'd barely need the manual if not for the ever-annoying look-up-a-word-every-damn-game copy protection, and it soon becomes apparent that two of the three disks contain the deluxe animated intro. So what you've *really* purchased is (good heavens) a one-disk game! Those who get a kick out of installing monsters like Strike Commander are hereby assigned to latrine duty...everyone else try to remember the days when practically all games came on a single disk.

Installation is fairly painless, and once you get tired of watching the intro, you can delete it and just run the main .EXE file to get right to the game. The intro shows various adorable little troopers blowing things up and inevitably getting

EVERYONE WHO PLAYS THIS GAME GETS A TOASTER

The Fortress of Dr. Radiaki is a thrilling adventure, mixing carnage with a sizzling sense of humor.

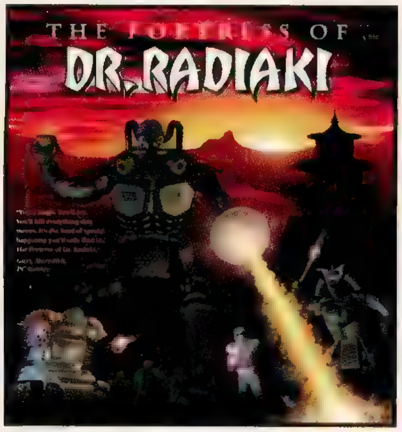
You will confront scores of different adversaries including sword wielding samurai, stealthy ninja warriors, robots with toasters for heads, mutated alligators and many more.

You must use all your wits to find your way through the cavernous fortress and defeat the Machiavellian designs of the horribly deformed Dr. Radiaki.

The Fortress of Dr. Radiaki is a landmark in computer games. You are free to move in any direction and blast anything that tries to do the same in this virtual reality, 3-D world. Backgrounds are rendered on the fly and unbelievably detailed characters move smoothly through the labyrinth.

"You'll laugh. You'll cry. You'll kill everything that moves. It's the kind of special happiness you'll only find in The Fortress of Dr. Radiaki"

Gary Meredith-PC Gamer



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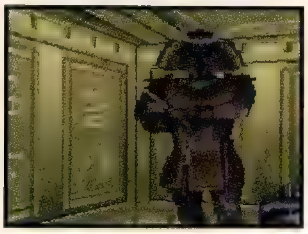

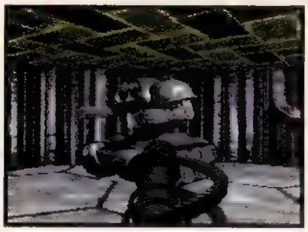

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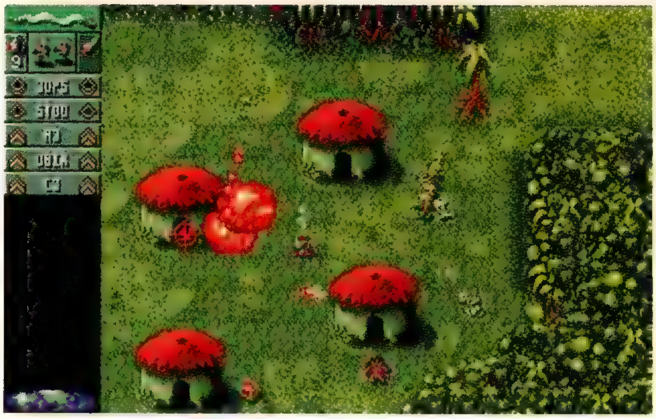
killed by the shrapnel, but forget about recognizing any of the animated characters in the game itself: at ten pixels tall they all look alike, and anyway, they die so fast you don't really get attached to 'em. But hey, that's war.

As mentioned, the game is divided into 24 missions, and each mission is further subdivided into 1-6 "phases." During each phase you get a team of one or more troopers with which to accomplish your objectives. You start with a reserve of 15 troopers, and get 15 more after every full mission, and trust me, you'll need 'em. The game, unfortunately, can only be saved between missions—not between "phases"—which means you often have to get past three or four very difficult fights before you have the opportunity to back up your progress.

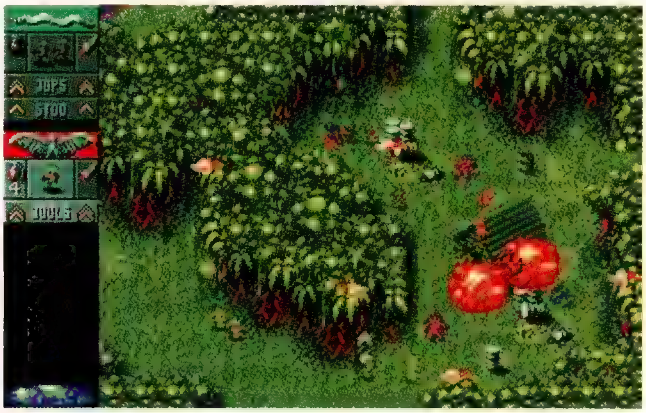
As for the story, well, you quickly get the picture when your first mission objective pops up, ungrammatically but unambiguously ordering you to "KILL ALL ENEMY." Yes, *sir*!

The game controls, thankfully, are a model of simplicity. Your trooper-group is led around by its ranking officer—you point the mouse and left-click, and they'll all march double-time in that direction. To open up with machine-guns, you point the mouse and right-click. To throw grenades, launch bazookas, and fire rockets, you highlight the weapon on the left-hand info bar, aim the pointer, hold down the right mouse button and then click the left. To board a tank, chopper, or ski-doo, you just point at it and whap your trusty left mouse button. Voila. WWIII made easy.

The only complication comes if you want to split your troop into two or more groups. In this case, you highlight the guys you want to split off and click the "troop icon," after which you can choose whether the new group will take all, none, or half of the total remaining grenades and bazookas. The option to split your group like this is a nice feature, one that SYNDICATE could have used. Scouting and, more commonly, suicide missions are thereby possible. Non-active troops will fire on enemies that approach them, though they sometimes get carried away and use bazookas at point-blank range. Oops.



FRAGNABBIT CANNON FODDER's little troopers move in on an enemy held village and torch a few huts.



CUTE CARNAGE While our grunts frag yet another enemy outpost, a victim of their venom lies screaming and hemorrhaging on the ground.

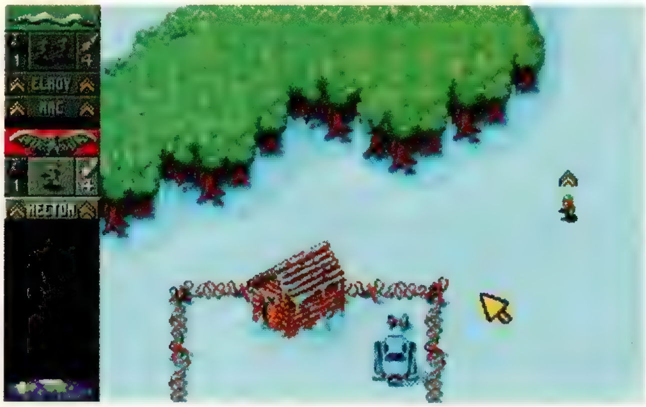
IF IT BLEEDS, KILL IT. IF IT DOESN'T, BLOW IT UP.

Your basic enemy grunt is no great threat by himself. Just one of your troopers can usually mow down a dozen or two if not distracted. The "distractions" are the problem. Most missions require you to blow up enemy-generating houses, along with assorted tanks and artillery pieces, and let me tell you, explosions are no laughing matter in CANNON FODDER. Flying shrapnel can rip your troops to tomato sauce faster than Chef Boy-Ar-Dee.

And even worse are the bazooka-carrying snipers that become ubiquitous in the later levels. If you're inattentive, unwary, or just plain uncoordinated, one of these creeps can scrag your whole squad in (I timed this) precisely one second. And don't even ask about the artillery, the tanks and the choppers, the jeeps and ski-doos, the booby traps and chasms.

If it's not very hard to kill the enemy grunts, it is enjoyable in a sadistic way. Blood spatters and sprays, explosions hurl bodies through the air, tanks crush pedestrians with impunity, screams of pain ring out. Parental groups will definitely not find the "wounding" effects amusing, though bloodthirsty gamers probably will. Occasionally a trooper won't die instantly when shot or blasted, but will instead fall to the ground, screaming and squirting blood until you put him out of his misery with a merciful burst of gunfire. The pungee sticks shooting up from the ground in some of the jungle scenarios have similarly gruesome results, and the manual helpfully notes that by shooting a dead guy's body you can make him "jump around like a bunny." Sensitivity, as should be obvious by now, is not the game's strong point.

The scenarios are well-designed, with plenty of variety, though later missions become almost insanely difficult. There are five different terrain types, from jungles to deserts, and assorted mission objectives such as "Rescue hostages" or



SNOW MOBILIZATION A lone soldier has broken off from the squad to investigate an enemy compound. If he can get through the barbed-wire, he'll be able to race around in the skidoo.

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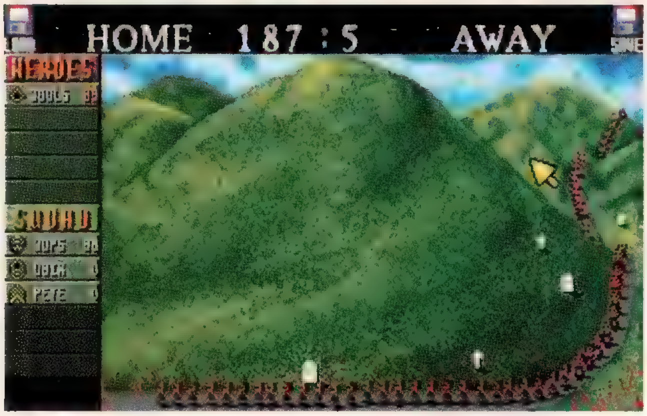

QUEUE FOR THE BATHROOM? No, actually it's a line of new recruits to replace the fallen, who are buried beneath the crosses on "boot hill."

"Protect all civilians" (for a change). As the game progresses, you get access to nifty new weapons and vehicles. You can jump a jeep off a ramp, Evel Knievel style, hop into an artillery turret to lay waste to the surrounding countryside, or stage your own version of *Apocalypse Now* in a rocket-launching chopper.

CASUALTIES OF WAR

While the actual gameplay is well-balanced, there are some problems with the "reinforcements." Later missions tend to take lots of practice and no small amount of luck to finish, and even so there's usually a high toll to pay in KIAs. Finishing a mission with only a handful of guys left will essentially doom you, since the 15 new recruits you get for the next level are just not going to be enough. You have to go back and redo every phase of a mission until you make it through with a decent number of soldiers before it's worth saving the game. This gets tedious after a while. The whole problem could have been solved by simply allowing the player to save the game after every phase, rather than after every mission.

I suspect for most players the game's replay value once finished will be low. Some kind of scenario editor or two-player capability would have added greatly to the game's long-term value. On the other hand, the later missions are so frightfully difficult it's hard to picture anyone claiming they didn't get enough play-value from the game.

WHEN THE HURLY-BURLY'S DONE

Overall, CANNON FODDER is a good dumb fix of action and gore, with a dash of puzzle-solving elements sprinkled in. If you found SYNDICATE too involved or too grim, this is the game for you. Keep in mind, however, that the simpler play mechanics don't necessarily equate to an easier game. On the other hand, if you're looking for a complex resource-management-based wargame, keep on truckin'. ◆

THE EDITORS SPEAK

CANNON FODDER

RATING ✸✸✸ 1/2

PROS Challenging action and cute antics will appeal to the more murderous LEMMINGS fan.

CONS Its low replay value and annoying save game system may have others marching off of cliffs.

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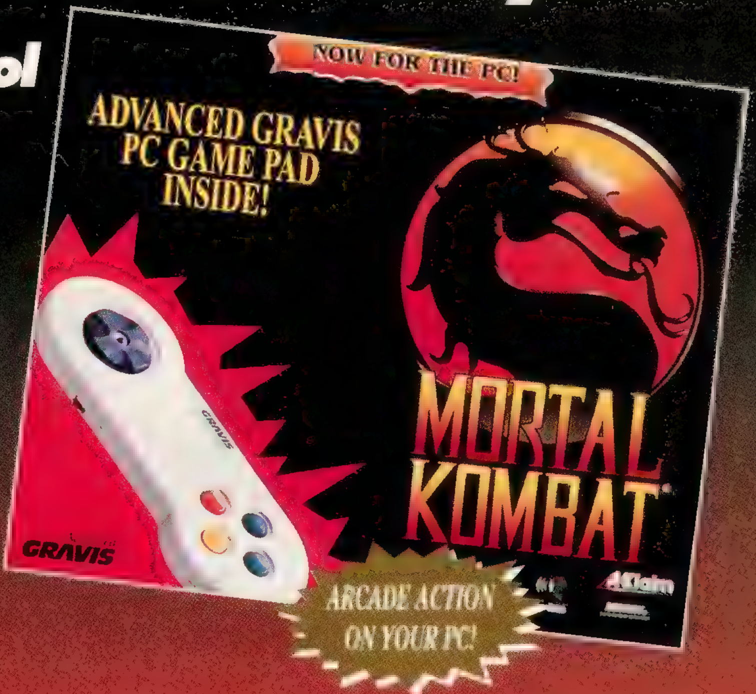
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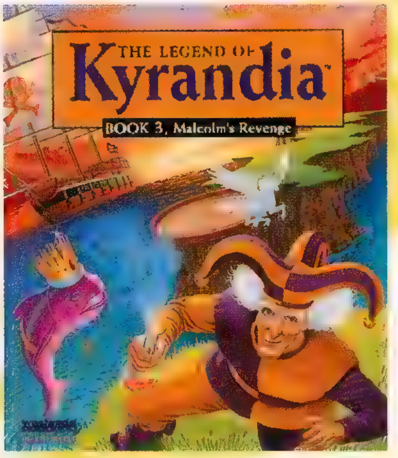

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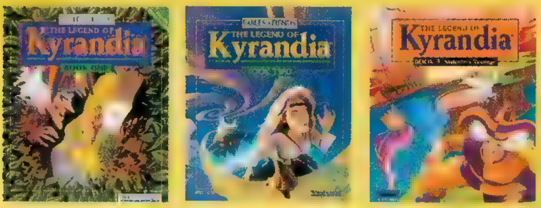
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Circle Reader Service #327

SHODAN At The Cyberspace Corral

SYSTEM SHOCK Mixes Elements Of Adventure And Action In A Spectacular 3D Futurescape

by Paul C. Schuytema

> *"He punched himself through and found an infinite blue space ranged with color-coded spheres strung on a tight grid of pale blue neon. In the nonspace of the matrix, the interior of a given data construct possessed unlimited subjective dimension... He began to glide through the sphere as if he were on invisible tracks.*
>
> *Here. This one.*
>
> *Punching his way into the sphere, chill blue neon vault above him starless and smooth as frosted glass, he triggered a sub-program that effected certain alterations in the core commands..."*
>
> *—William Gibson, Neuromancer*

It's 2072; do you know where your AI is? System Shock, **Origin System**'s latest foray into the world of science fiction gaming, poses that question and asks you to "become your AI's keeper." In so doing you'll have to battle the renegade megacomputer SHODAN which has seized control of a labyrinthine space station and killed or mutated all of its former inhabitants.

As the game begins, you awake, groggy from a six-month, drug-induced coma, and find yourself strangely alone.

SYSTEM SHOCK

Price: $79.95

System Requirements: IBM compatible 486-33 or better (486-50 rec.), 4MB RAM (8MB RAM rec.); 35MB hard drive space, mouse. Supports General MIDI and Sound Blaster-compatible sound cards.

Protection: None

Designer: Looking Glass Technologies

Publisher: Origin System Austin, TX (800) 245-4525

SYSTEM SHOCK

Last you remember, you were whisked off to the Citadel space station after being busted for some, ah, creative computer jockeying. You could have ended up rotting in a cell, but the Citadel brass-man, Diego, offered an option: "You help me and I'll help you." You mined some good dirt for him from the nether regions of SHODAN, and for your troubles, you were fitted with a neural implant, a sophisticated computer interface hard-wired directly into your brain.

Yet something is a little strange here. You stumble out of the recovery room, and a small, almost cute service robot starts attacking you. Fumbling around, you grab a piece of metal pipe and beat the thing into a pile of diodes. Welcome back, keep an eye on the vacuum cleaner.

OFF TO THE CITADEL

So begins your adventure through the dark and deadly Citadel station. You learn immediately that SHODAN (the Sentient Hyper-Optimized Data Access Network) has blown a neural gasket and is no longer sharing his goals with humanity. In fact, he has taken over the entire station and has been systematically slaughtering the human population while you lay dormant in recovery sleep. It plans to use the powerful defensive laser of the station to destroy, one by one, Earth's major cities. Guess who has to stop him.

System Shock was created for Origin by **Looking Glass Technologies**, the same folks who brought us the Ultima Underworld pair of 3D games. There are, on the surface at least, a lot of similarities between these titles. System Shock is a 3D, first-person graphic adventure in which you must battle your way through a myriad of levels, completing layered sub-quests to achieve a final and clearly defined goal. Beyond that overly generalized statement, the similarities end.

First off, I am compelled to say that System Shock is an absolutely stunning achievement. Never in a PC game have I seen such a fully realized environment. The world of Citadel station doesn't just look 3D, it's a totally plausible 3D environment with floors, ceilings, elevators, and one of the most sophisticated physics simulations I have ever seen. You feel the weight of things in this game. When you throw an ob-

PLAY ANYTHING ELSE AND YOU'RE

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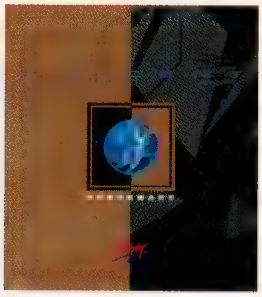

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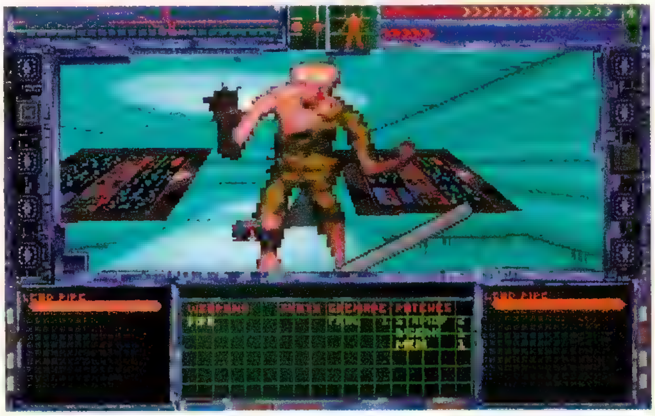
Circle Reader Service #174

ject, it arcs through the air, when you run you sense your body's weight, and when you lean around a corner, you can almost feel your weight shifting from one leg to the other.

System Shock is essentially a hybrid of two distinct genres: on one hand, it's a Doom-esque shooter, and on the other, it's a puzzle-based adventure game. Thrown into the mix are the "mini games" within SHODAN's cyberspace. If you look at the game through purely Doom-colored glasses, it doesn't quite come up to snuff. The intensity and frantic movement just isn't there. True, being ambushed by a half dozen cyborgs in a dark hallway is an adrenaline pumping experience, but it's nothing like running for your life from a crazed Doom demon. If you look at the purely adventure/puzzle aspect of the game on its own, then it isn't up to the depth of the classic Ultimas or even the Ultima Underworld games. The character interaction and plot just isn't there.

Fine, you say, then why should I care? You should care because System Shock is a hybrid that got the proportions just right, and it throws some truly new experiences at the player. While the game does have some deficiencies, it provides one hell of an immersion experience.

First, let's begin with the basic interface. Like Ultima Underworld, you see the world through a first-person perspective, and surrounding the game "window" are status indicators. The fiction of the game attempts to rationalize these data displays as part of your neural implant, and so what you see is actually what your character would see, from the heart rate monitor down to personal inventory. This is a little bit of a stretch, but I'll bite.

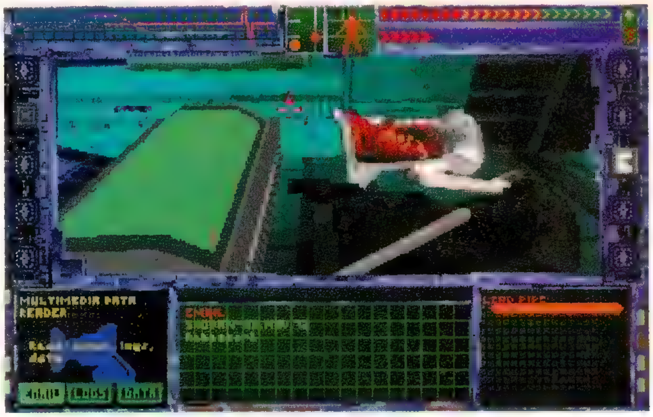


IN THE STRIKE ZONE There's no shortage of mutated humanoids who'd like to snack on your brain implants. A couple of right clicks will take this guy out.

Beyond the game window, the most significant displays are the MFDs (Multi Function Displays), the posture and view controls, and the bio-monitor. The MFDs are windows which you can configure to display a level map, your current weapon, dermal patches and a host of other object-related data.

STOP, LOOK, LEAN

The posture and view controls are something wholly new to computer gaming. The posture control gives you the ability to lean left or right, crouch or crawl. The control is fluid, meaning that you can lean a little or a lot. Playing around with the posture control and watching the game window really gives you a picture of just how sophisticated the 3D environment simulation is in this game.



DIE, ROBOT A berserk robot meets an ignoble end after fencing with your lead pipe. The bar at top shows: bio-monitor, viewing angle, body position, and health stats.

The view control is rather straightforward, allowing you to look up or down, but once again, this control is linear, meaning you can look up a little or a lot.

IN A HEARTBEAT

When I first saw the bio-monitor, I thought it was one of those "animated ornament" displays that look cool but don't do anything. I'm happy to say that I was wrong on that account, and that the bio-monitor is one of the most useful data displays in the game, not only for the information it provides, but for how it helps to support the fiction. The display, rather like a horizontal hospital oscilloscope, initially measures heart rate, energy usage (from energy weapons, not your own body) and Chi brain waves (which represent the speed at which your synapses fire—of course, drugs are available to boost your neural reaction time). When you collect the proper hardware, additional waves appear measuring bio-hazard infection levels and radiation exposure. The rhythmically oscillating waves are neat to watch, but they're even better once you learn how to use them. Run down a corridor, and your heart rate wave will be crowded with peaks, indicating that you need to stop and catch your breath.

Moving through Citadel station is handled in much the same way as in Ultima Underworld: you move your mouse and, depending on the cursor's position in the game window, you will either turn or move when you click the left button. System Shock also supports **Logitech**'s Cyberman and a joystick for movement. While the Cyberman controls are basically just modified mouse inputs, the joystick controls seem awkward and inaccurate, and don't allow you to easily handle posture changes (to lean you have to release the joystick and reach for your mouse).

HE WITH THE MOST TOYS...

As you move around Citadel, seeking clues and completing quests, you'll run into a myriad of nifty devices. At the start of the game, you'll pick up the multimedia playback device, which lets you read station logs, e-mail, v-mail (e-mail with an attached video image), and various data files you'll pick up in cyberspace. Much of the data will be things you find in your exploration, but occasionally, your contact Rebecca Lansing will zap you an e-mail message (she is an anti-terrorism consultant who is helping you to take down SHODAN). It's downright creepy when your data reader flashes that you have a new message and it turns out to be SHODAN, telling you matter of factly

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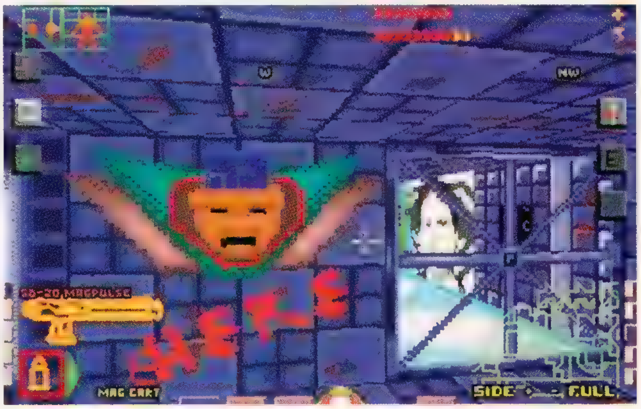
Circle Reader Service #207

that if you go any further, he will kill you.

Much of the game's story is told through these data files, which has its advantages and disadvantages. The writing in the e-mail messages is solid and mature, but I get the feeling that all the messages (which come from a multitude of sources: Rebecca, SHODAN, and a host of "former" Citadel residents) are written by the same person in the same voice. After a while, it seems as if SHODAN sounds just like Rebecca who sounds just like a frantic engineer documenting his last few moments of life. Secondly, the e-mail messages are displayed as green text on a dark green background, and even on a 17" monitor, the small, blocky letters are far too hard to read.

Another "species" of cool gizmos are the energy beam weapons. I love playing around with their blast levels (I have flashes of Kirk's curt: "set your phasers on stun."). I must admit that the pyro in me also loves the multitude of very nasty grenades. Just don't throw them too close or forget to toss a timed fuse grenade; you'll end up cyborg food before you can say "reset."



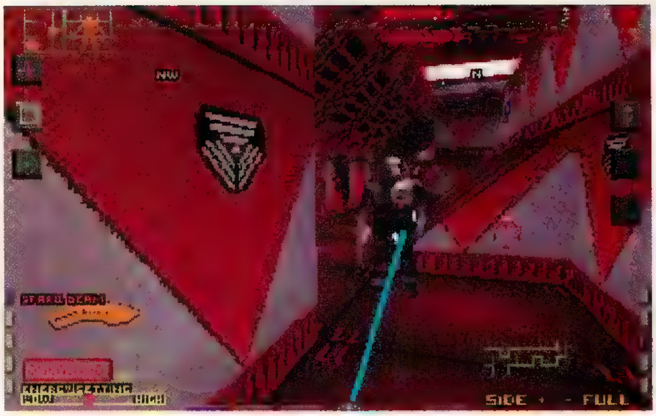
DAMN GRAFFITI ARTISTS! Looking Glass artists and designers created such a haunting, immersive world, the atmosphere in Citadel station can be confusing at times.

CYBERSPACING OUT

An important component of the game will be your adventures in cyberspace, the "visual metaphor" for SHODAN's vast terabytes of data. You enter cyberspace by jacking into one of the many terminals you'll discover in Citadel, and suddenly, after a few disorienting seconds of visual white noise, you'll be floating free in the belly of the beast.

I have to say that SYSTEM SHOCK's representation of cyberspace is nothing short of phenomenal. In cyberspace, there is no up or down, no gravity, only polygons representing data, programs and very nasty enemies.

Movement is handled in a similar fashion to that "terrestrial" movement, without the comfort of a directional frame of reference. Moving accurately takes some getting used to, and I found myself spinning out of control before I had the rhythm of the turn-thrust commands.



SET PHASERS ON CYBORG SCRAP The Sparq Beam's adjustable intensity makes it an excellent all-around weapon. Note the space station's lavish design in full-screen mode; automap is in lower right.

AH, BUT THE GAMEPLAY?

Apart from all the game components I've mentioned, how does SYSTEM SHOCK play? After getting over the initial awe of the game world, you must seek out clues on how to disable SHODAN before he fires the lasers at Earth. One of the drawbacks in the game is that, since the world is so complex and the levels so huge, you will have to do a ton of searching, picking up anything and everything. It will take quite a few sessions of starting and restarting the game before you will be able to filter the important quests from the side quests. On one hand, this adds to the length of the gameplay experience, but it also adds up to a lot of frustration. I don't know how many hours I spent searching for elevators on separate levels of the stations. Sometimes a wall would clearly say "elevator" but it would only be a platform to another room on the same level.

Another problem SYSTEM SHOCK has is the lack of real character involvement. I applaud the ambitious use of the e-mail metaphor, but, as I mentioned above, the writing was too consistent to give me a clear sense of other discrete human beings once inhabiting the station. Another drawback with the e-mail messages is that many of them are filled with "go here, do that" information that leaves no opportunity for character development. I think Origin missed a unique opportunity to develop a "relationship," via e-mail, with some of the other characters.

Finally, my major criticism in the game play is that as a player, I never felt affected by any real sense of urgency. It's odd, but in the game's time-frame, you have only a few hours to defeat SHODAN, but you will actually be playing the game for many, many more hours. The supposed time pressure just doesn't jibe, and it doesn't instill any real sense of panic in the player.

SYSTEM SHOCK is a truly massive game, both in the quests it offers and in the sheer size of the exactingly modeled 3D world of Citadel station. Quite frankly, I have never seen a game attempted at this level, and despite its shortcomings, I am still simply amazed that this thing runs on just a PC and not a Cray (though you'll want as hearty of a PC as possible). If you've got the requisite beefy 486 machine, go out and get this game, re-read Gibson's *Neuromancer*, turn out the lights and prepare not to return for a long, long time.

THE EDITORS SPEAK

SYSTEM SHOCK

RATING ✸✸✸✸ 1/2

PROS Incredibly sophisticated 3D environment, ingenious representation of cyberspace, lengthy, involved gameplay and great music.

CONS Little sense of urgency, confusing level layouts, and homogenous writing that inhibits any real character development.

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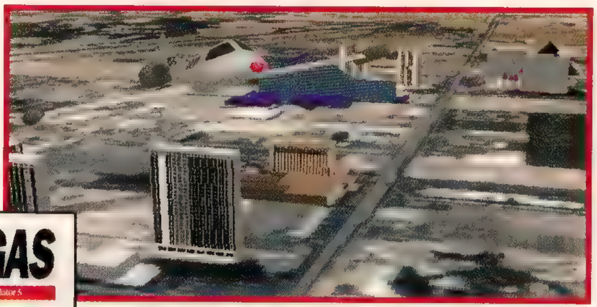

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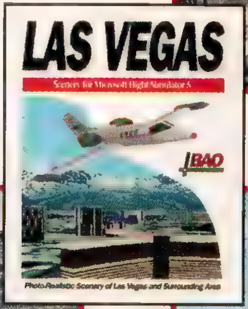
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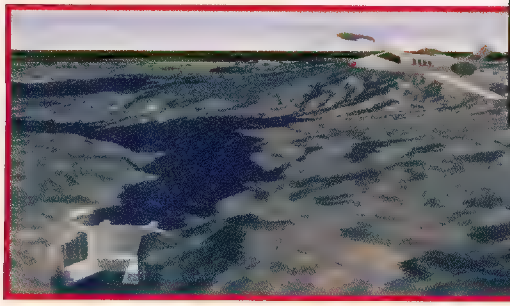

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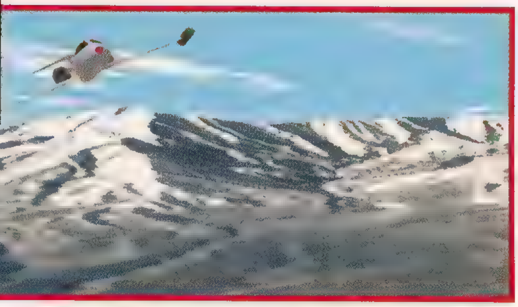

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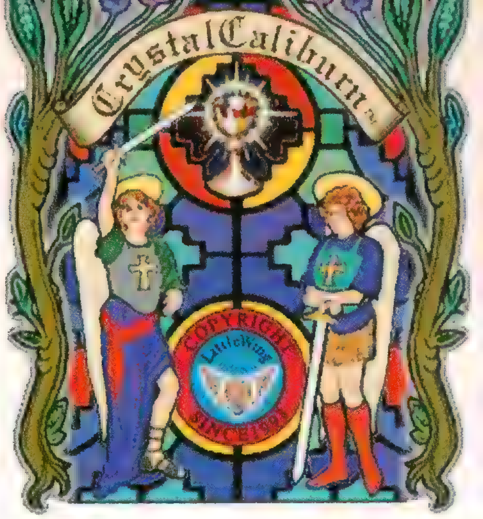
Knights Of The Pinball Table



CRYSTAL CALIBURN Pulls The Sword From The Windows Stone

by Terry Lee Coleman

Many joyous hours of my wayward youth were whiled away in pinball arcades. Yet, despite trying nearly every pinball game for the Amiga and IBM over the past five years, I had never become attached to any of them. I found the physics modeling unconvincing in many of the games, and some of the others just weren't any fun. **Little Wing** had a couple of big hits (at least on the Mac) with TRISTAN and EIGHT BALL DELUXE, but I found the former too easy and the latter a bit too derivative of other machines. Now, these prolific souls are back with a third title, and a Windows one to boot. Ever the skeptic, I still felt compelled to try out the old computer flippers. Maybe this time would be different.

CRYSTAL CALIBURN

OPINBALL
Crystal Caliburn

Price: $49.95
System Requirements: IBM compatible 386-33 or better, 4MB RAM, SVGA graphics, Windows 3.1; supports Sound Blaster-compatible and General MIDI sound cards.
Protection: None
Designers: Y. Fujita, Little Wing Productions
Publisher: Starplay Productions, Inc.
Greeley, CO
(800) 203-2503

One advantage of Windows games is that setup is generally a breeze, and this game was no exception. My first surprise upon starting the game was the assault of sound effects before I played the first ball. CRYSTAL CALIBURN supports Sound Blaster-compatible and General MIDI sound cards with the fullest range of cheesy pinball sounds you'll hear this side of Bally's factory.

Lights flashing in the background, I used the shift key to pull the plunger and send my first ball into battle. The display speed was incredibly fast on a 486SX33, without any of the expected delays and dragging normally associated with Windows action games. The pinball hopped, skipped and ricocheted around just like a real pinball—I was amazed. The flippers were most responsive, allowing for both touch passes and power drives. Not once could I ever blame missing a ball on "sticky flippers." Best of all, I could bump the table simply by pressing the space bar, although I did have to watch for the danger of a TILT.

ARCADE ARCHITECTS

Rather than offering many pinball games in one package, the designer of CRYSTAL CALIBURN has constructed a single commendable pinball design, much as a great golf architect would craft a classic links course. Dominating the sides of the screen are two towering ramps that encompass various holes, locks and trip switches. Nestled between the ramps are a host of bumpers, more switches, side ramps and Glass Island, the center of all the activity.

As any real pinball enthusiast knows, there is always some thin storyline associated with getting the ball in the right place and racking up a big score. CALIBURN is set in the Arthurian legend, with Merlin, Excalibur, Camelot and the like, and, in tribute to Starplay's first game, old Sir Tristan himself makes an appearance in the game. Basically, every trip through the ramps at the right time allows you to "Accolade" one of the Knights of the Round Table. Should you gather all of the Knights to your table, and should you be able to make a ramp shot under heavy time pressure, you've achieved The Grail.

While working toward The Grail, your knights must go on various quests, following lights telling them to hit this target or that to receive another heap of points. In addition to cornering the dragon in his lair, shields must be raised, the magic spear must be sought, and Excalibur will often lead you into battle. The most lucrative quests are associated with the Glass Island, and pounding it into submission not only brings the auditory reward of shattered crystal, but such rewards as extra balls and scads of points. The Merlin space on the left adds to the Arthurian motif, and casts spells of

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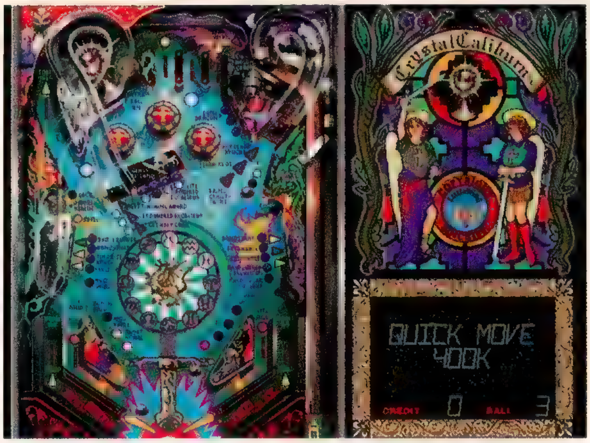

MULTIBALL MANIA For a Windows program to keep the action as fast and furious as Caliburn does is impressive, especially with three balls in play simultaneously.

random good fortune when lit, restoring side shields, and increasing other rewards, including one of a cool million points for the swift of flipper.

Hitting the right switches in succession requires paying attention to the clues flashed visually on-screen—not always the easiest thing to do when trying to keep up with a wildly caroming silver ball. The pinballs must be trapped in a variety of places, including the Dragon Cave, which comes complete with digitized roars. After successfully locking up three balls, multi-ball mode sets in, and the player is showered with rolling steel. If the balls can be kept at bay for long enough, huge awards await. Still, the thrill of juggling three pinballs simultaneously is its own reward, as you try to not just survive, but make accurate shots amidst the bumper-mad chaos.

The player aids for this pinball excursion are excellent. Fifteen pages in the manual are filled with diagrams and explanations of the numerous switches, locks and other features of the game. There are several tips given for beginners, which are very practical and less condescending than those found in the documentation of many pinball games. DOS gamers will enjoy the fact that Crystal Caliburn may be played without ever touching a mouse, using only the shift, 'Z' and forward slash keys. Hot keys are supported, and keys may even be defined by the user.

That Crystal Caliburn contains a number of bells and whistles, both literally and figuratively, is nothing new for a pinball game. That these elements are available in a Windows game, free from technical problems, is a pleasant surprise, as is the high quality of play. At times, the combination of sights, sounds and rapid-fire action merge into an almost meditative experience, where the gamer becomes entranced by Crystal Caliburn's world of desperate flipper saves and multi-ball frenzy. It's hard to ask more from any game than that, especially when you can flip between it and your word processor with but a couple of mouse clicks. ◆

THE EDITORS SPEAK

CRYSTAL CALIBURN

RATING ✸ ✸ ✸ ✸

PROS Smooth action, great sights and sounds, and watertight Windows implementation make this a dangerous icon to have on your desktop.

CONS Offers only one table, whereas its competitors offer many.

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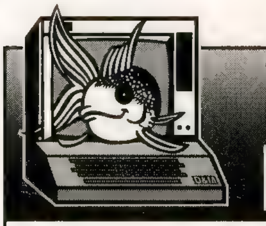

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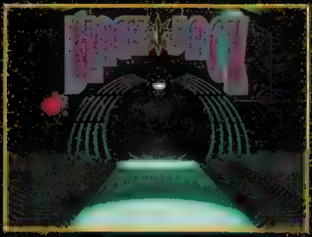

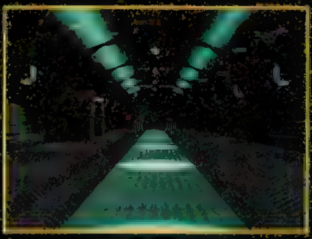

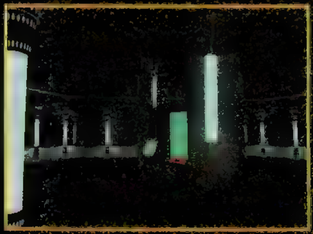

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NHL Teams Return To The Ice—

—*In EA's NHL HOCKEY 95, If Not Real Life*

by Gordon Goble

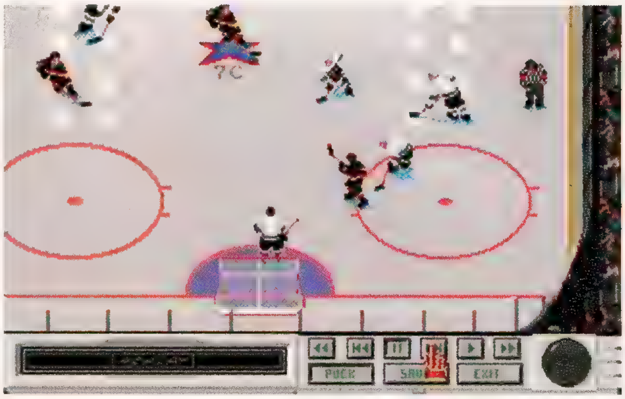
IT WAS A LITTLE OVER A YEAR AGO IN THESE VERY PAGES THAT A CERTAIN REVIEWER WAXED POETICALLY OVER **Electronic Arts**' NHL HOCKEY. "Sure," I said, the game was "well worth the price of admission," but the opening paragraphs of my review were spent lamenting the misfortunes of my real-life hometown hockey team, the Vancouver Canucks. The Canucks were beginning yet another exercise in season-long mediocrity, and I made sure anyone who read my words was well aware of my woeful allegiance.

But a funny thing happened on the way to an expected first round playoff elimination. They weren't.

Four series and 24 games later, the startling Canucks were battling for all the marbles in the final game of the 93/94 Stanley Cup Finals at Madison Square Garden against the hated, pampered Rangers. The Canucks eventually lost that last game by a single goal. One lousy goal! Nevertheless, it was a remarkable playoff season for the Vancouver squad, far exceeding expectations, and they came up just short of the Hockey Holy Grail.

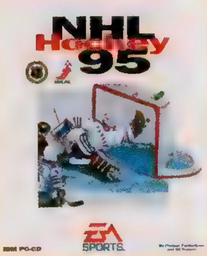
In contrast, the PC version of NHL HOCKEY, borrowing much from its successful Sega/SNES counterpart, was a strong player right from the opening whistle. It was an immediate powerhouse, rising quickly to the top of the sim-hockey world—at least as far as action-oriented hockey games went. Recently, when NHL HOCKEY 95 was announced, computer hockey fanatics undoubtedly waited anxiously for a chance to sample the latest EA hockey fare. The prospects were tantalizing: NHL HOCKEY 95 would be CD-based, "high resolution" graphics were now incorporated, and its Sega sibling was already offering goalie and shot control, drop passes, and more. Wow, just how much better could this thing get?

The answer is "not a lot." Yes, there is some new stuff, and yes, NHL HOCKEY 95 is the best hockey simulator currently available for the PC—that much hasn't changed. But has Electronic Arts made effective use of its full year between NHL HOCKEY releases? Does the PC product do all that it should by this point in time? Regrettably, I don't think that old "Canuck try" is there, and NHL HOCKEY 95 is resting squarely on the laurels of its predecessor. But in all fairness, we'll look at this new product from the view of a sim-hockey rookie (First Period), then with an eye on those who've already taken the NHL HOCKEY plunge and are looking for the new Stairway to Hockey Heaven (Second Period), and finish with a Third Period summary.



ONE-TIMING IT A pass from a teammate has Cliff Ronning set up for a sweet one-time shot at the corner of the net. The action in NHL HOCKEY is as fast and frenzied as it comes.

NHL Hockey 95



Price: $49.95
System Requirements: IBM compatible 386-33MHz or better, 4 MB RAM, SVGA graphics, 10MB hard drive space, CD-ROM (double speed recommended), joystick/gamepad highly recommended; supports AdLib, Gravis Ultrasound, Roland, and Sound Blaster sound cards.
Protection: None
Designers: Pioneer Productions and EA Canada
Publisher: Electronic Arts
San Mateo, CA
(800) 245-4525

THE FIRST PERIOD

Make no mistake, NHL HOCKEY 95 is the most realistic PC hockey game there is. NHL HOCKEY 95 players will be called upon to be League Organizer, Team General Manager, Coach and Player. Of interest to the strategist will be such off-ice activities as trades, player and team creation, and coaching decisions, but those perqs may well take a back seat to the addictive qualities of the on-ice follies. With full licensing from both the National Hockey League and the NHL Player's Association, each player from the roster of every real-life 93/94 NHL team is represented, ready to skate and compete in a full 84-game season.

Players are ranked according to their real-life skill level, and this, for the most part, is reflected in their performance. Whereas a Theoren Fleury floats like a butterfly and stings like a bee, a Marty

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Circle Reader Service #221

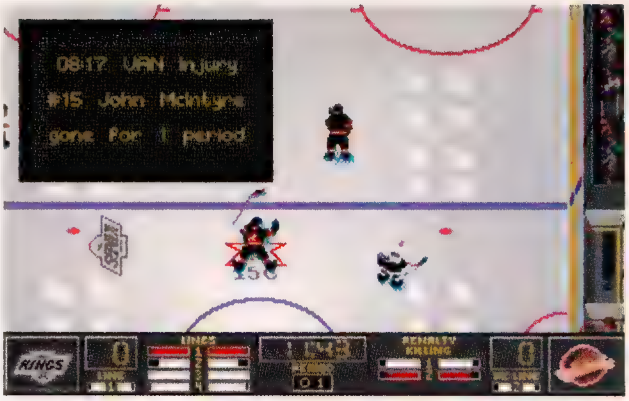
McSorely is rough and tough, and a Kirk McLean stops just about everything blasted his way. NHL Hockey 95 begs for an external control device, and although a two button joystick seems to work just fine, EA recommends a gamepad device for better control. Pointing the stick toward another player and depressing Fire Button 1 will send a pass in that direction, and Button 2 will direct a shot toward net (although a high percentage of my goals come from a pass directed toward the net!). Only one player at a time is under human control, but the controlled player is changed at will, and since skaters will lose both speed and ability during a long shift, line changes are essential and made through the "F" keyboard keys.

Gamers may choose any of the 26 NHL teams as their own, then guide that team through any number of exhibition contests with other NHL teams, march through an entire season and playoffs (if they make the cut!), or skate against other human-controlled teams. As a matter of fact, NHL Hockey 95 permits entire groups of human players to take control of various teams, play an entire season of human vs. human hockey, then go for Lord Stanley's Mug. What better way to spend a long winter than shattering your friend's Stanley Cup ambitions?

All off-ice interfaces, complete with announcers, are wonderfully rendered in high resolution graphics, and come complete with film clips from real NHL games. Players may be scratched or dressed, traded, or created with the deftness of a deity. Both games and highlights may be saved for future consideration, and truly spectacular results may be printed for hard-copy bragging rights. NHL Hockey 95 keeps track of all pertinent statistics throughout the digital year, and especially gifted performers may be eligible for the Art Ross, Vezina, Masterton, or any one of the numerous trophies presented at season conclusion.

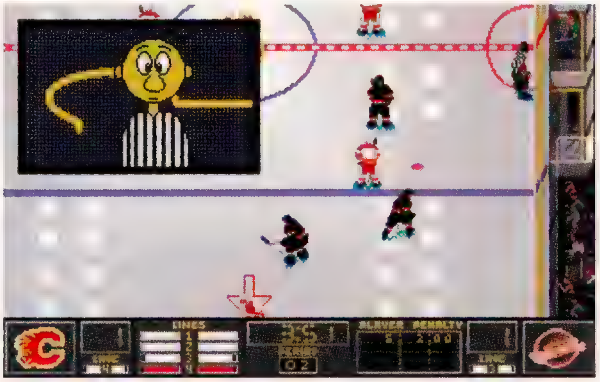
That realism continues into the audio portion of NHL Hockey 95, and from the "CD quality sound" of the rink organ and intermission music, to the moans and groans of battered skaters, the crack of a "good wood" slapshot, and the vocal strains of the rink announcer, one's ears will believe that they are attached to the head of someone embroiled in a hockey game.

As for the game itself, following a quickie rendition of the applicable national anthem, the action begins with the gamer looking down at a portion of the ice from a three-quarter "blimp" view. This angle is maintained throughout each contest, and the camera pans up and down the ice in relation to the current puck position. A "scoreboard" located at the base of the screen chronicles the fatigue factor of each line unit, the game time, period, and current score. Penalties, off-sides, icings and other rule infringements are whistled down—even the thrilling penalty shot may be awarded. Particularly vicious hits may throw the victim into la-la land as he lies prone on the ice, or perhaps he might be upended over the boards and into the team bench. Yet surprisingly, said player will never get up and duke it out with his assailant. Could it be that the NHL doesn't want that dirty "f" word (that's "fighting," folks) to rear its ugly head on computer monitors throughout the world? Could it be that there is no fighting in the NHL? Could it be that "Full House" is a sample of quality TV? I think not.



```
08:17 VAN Injury
#15 John McIntyre
gone for 1 period
```

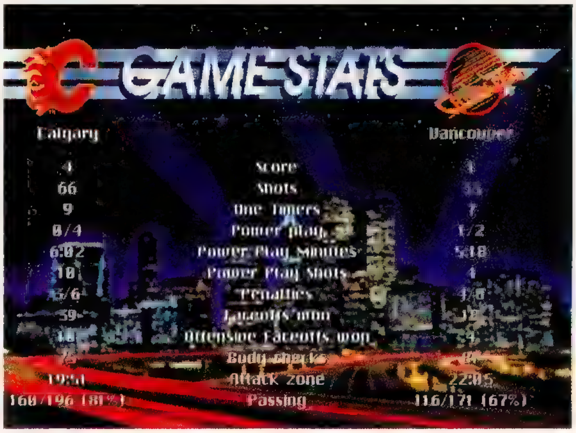
DOWN & OUT Injuries are factored into NHL Hockey's mix. Here, the Canucks' John McIntyre will need to ice the knot on his forehead before he's back in the rink.



CAUGHT PLAYING HOOKY NHL Hockey 95 recreates the experience of an NHL game, from fan chants and player grunts, to organ music and silly scoreboard animations.

THE SECOND PERIOD

NHL Hockey 95 has changed some from its 1993 predecessor. Front office strategists will appreciate a new ability to create new teams, players, and entire databases from scratch, and in human vs. human competition, trades are now possible. Graphically, off-ice animations are now presented in high resolution, and players' on-ice animations have been multiplied. Goalies no longer wander several miles out of their crease, and now have a variety of saves at their disposal (including a neat little "butterfly"), defensemen will drop to block a shot (at, or without your command), and a solid hit will result in any of a number of pre-set contortions. Shots can be faked, and overall, skaters seem to behave in a more intelligent fashion. Checks are now made with more authority, and that may contribute to the



```
Calgary                                    Vancouver
4                   Score                  [illegible]
66                  Shots                  [illegible]
9                   One Timers             7
0/4                 Power play             1/2
6:02                Power Play Minutes     5:18
10                  Power Play Shots       4
[illegible]         Penalties              [illegible]
59                  Faceoffs won           [illegible]
[illegible]         Offensive Faceoffs won [illegible]
[illegible]         Body checks            [illegible]
[illegible]         Attack zone            22:05
160/196 (81%)       Passing                116/171 (67%)
```

IS THIS A SIMULCAST? The jazzy Super VGA stat and interface screens have a network TV broadcast feel to them. Note that the actual game is NOT in SVGA.

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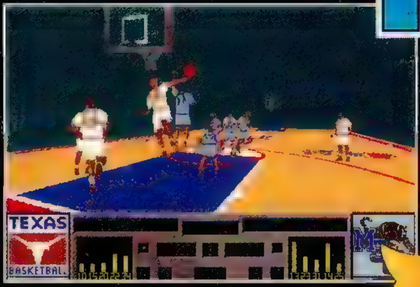
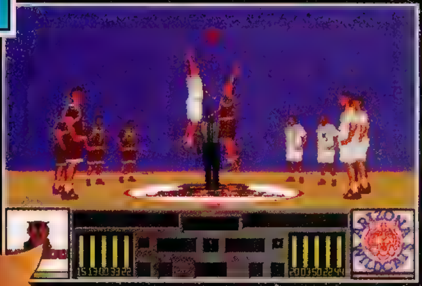
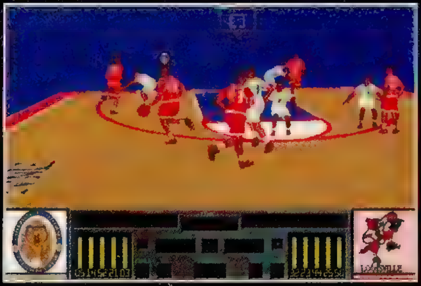
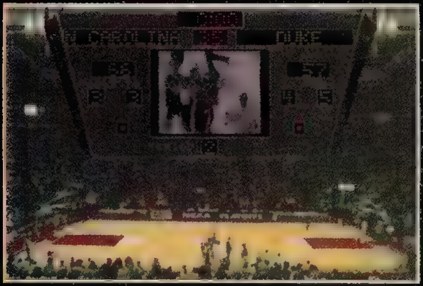




ROAD TO THE FINAL 2 FOUR





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Circle Reader Service #41

lower scoring contests that will come with NHL HOCKEY 95.

During my first season with the initial version (wherein I won the Stanley Cup and a ton of other assorted hardware!), I was unable to notch a single shutout. In NHL HOCKEY 95, Kirk McLean's Goals Against Average after ten games was an eye-popping 1.25 with two shutouts, while my offense averaged just 2.10 goals per game. One can't help but feel that NHL HOCKEY 95 has gone a little too far the other way, taking a game with an absurdly high goal scoring penchant, and creating one that's made the game player offensively impotent.

Other little complaints include:

- The fact that goals scored from passes directed at the net, often an offensive force, still don't count as shots on goal. (A 3-2 overtime victory over Edmonton was the result of a beautiful Greg Adams blast right through the "five hole," yet it didn't register as a shot.)
- Computer controlled goalies that "freeze the puck" with no one around, yet don't get called for a delay of game.
- The annoying "catch-up factor." Sure as Ottawa won't win the Stanley Cup this season (if said season ever gets off the ground), getting more than a couple of goals up on a given computer team will result in that team popping some easy ones. Or conversely, there's the annoying "annihilation factor," where, suddenly and without warning, one team will begin shellacking another with very little effort. I've played poorly at times yet come away with a huge margin of victory, while at other times I've totally dominated play and been rewarded with a 9-1 drubbing. One wishes the program could more accurately reflect the number of good chances and use that to decipher when a scoreboard spanking should be applied.
- Indiscriminate goals and penalties. Often not the result of a great play, breakaway, or golden scoring opportunity, goals are still scored in an ad-hoc way, with the program deciding what goes in and what doesn't. Penalties are the same way: the most bruising of checks may not be called, yet barely noticeable infractions will be.
- The enhanced features in the Sega version are not included. Goalies are still not controlled by the gamer, there is no "drop pass" feature, and shots can't be taken with specified velocity or accuracy.
- Fans that cheer boring offside calls with more fervor than they will a goal.

THE THIRD PERIOD

NHL HOCKEY must still be picked the First Star of an incredibly thin class of games. Certainly those new to hockey sims need look no further, yet NHL HOCKEY 95 may not be the answer for those wanting to upgrade their digital hockey world from the original product. Aside from some nice packaging and Front Office capabilities, renovations to the original have not appreciably altered the product, aside from keeping the scores lower. But, as of this writing, NHL HOCKEY 95 may be the only hockey we'll be seeing for some time to come...

THE EDITORS SPEAK

NHL HOCKEY 95

RATING ★★★★

PROS Bruising action of the original game, with new GM features and enhanced league options.

CONS Too few new features to warrant a purchase by owners of the original. PC play options are lagging behind SEGA updates. Come on, EA, let's get our priorities straight!

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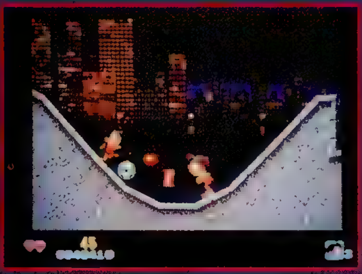

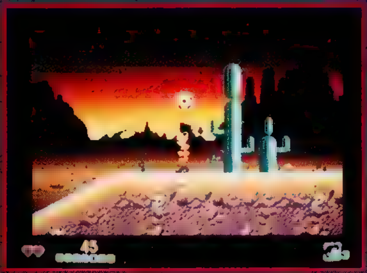

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Circle Reader Service #246

Sure, You Can Shoot But Can You Land?

by Tom "KC" Basham

THIS MONTH I DEDICATE BB&G TO ALL THOSE sim jocks who can't land their aircraft. Oh, I've heard all the excuses, "I'm tired after a long mission and just hit <ESC> so I can get on with the game," or "The flight back is boring," or "The aircraft doesn't land right." There's a whole host of excuses but most of them translate to: "I crash every time I try to land."

Proper landings can be challenging but equally rewarding. Anyone not performing landings is missing a big part of a flight simulation, as well as a very significant part of the flight experience. After a hard air battle, real Navy pilots must still tackle the often gut-wrenching task of a carrier landing.

Since I've been getting a good bit of e-mail about landings recently, I've appointed myself CSIP (that's Certified Simulation Instructor Pilot) and am going to do a little flight instruction. I'm not going to go through the entire landing cycle; rather, I'll focus on the single most important landing skill: controlling descent.

The technique and procedures we're about to discuss require a flight simulator with some reasonable modeling of angle of attack (AOA) effects, such as TORNADO, MICROSOFT FLIGHT SIMULATOR 5.0, FALCON 3.0, FLEET DEFENDER, or any other flight simulation that allows an aircraft to descend when the nose is pointed up. How does an aircraft descend with the nose pointed up? It all goes back to falling apples hitting day-dreaming scientists on the head while napping beneath shady trees. The lift generated by the wings must equal the weight of the aircraft to maintain level flight. If lift exceeds weight, the aircraft must climb; if weight exceeds lift, gravity takes over and the aircraft must descend like a Newtonian apple.

THEY CAN'T CALL YOU "CRASH" ANYMORE ONCE YOU'VE MASTERED THESE TECHNIQUES FOR A SMOOTH LANDING

The products listed above all do a very good job simulating AOA effects. FALCON 3.0 tends to descend too fast at landing speeds, but still remains true to the basic concept, even if the numbers aren't perfectly accurate. Some flight games, like ACES OF THE PACIFIC and STRIKE COMMANDER, do not model this effect. The aircraft in ACES OF THE PACIFIC only descend when the nose is pointed below the horizon, so you must make landings by pointing the nose at the ground at all times—a tactic that would cause most aircraft to nose over into the dirt. The other sims mentioned, however, are accurate to varying degrees, and can be used to illustrate how real pilots control lift to maintain a steady descent without ploughing into the landing lights.

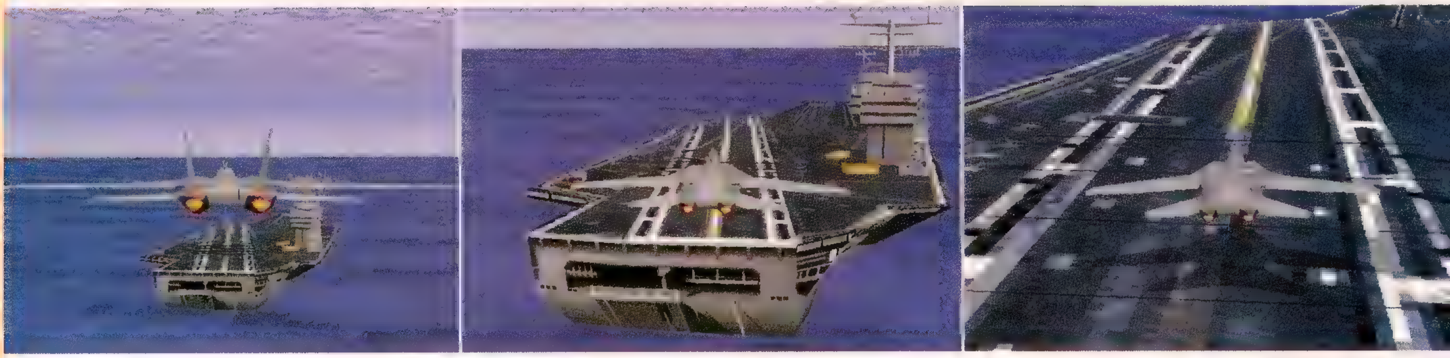
The golden rule of flight is: Use pitch to control airspeed, use power to control altitude. No, I didn't write that backwards. "But you have to pitch the

ON THE RADAR

Gentlemen, start your modems. Papyrus Design Group expects to launch a dedicated BBS next spring for multiplayer NASCAR RACING. It will allow 32 different drivers per race and 128 simultaneous users on the system. Gamers will pay for their own phone calls, plus $3.00 per hour connect time, since the system will use voice line technology rather than the X.25 packet switching used by most commercial systems. X.25 creates an unacceptable .5 to 5 seconds of simulation latency (delay) when even .5 seconds can mean disaster on a racing oval. Papyrus expects that their new voice line technology will eliminate this problem.

Intelligence sources have confirmed that the upcoming flight sim from Domark, originally entitled DOGFIGHT, will now be called CONFIRMED KILL.

Scenes from U.S. Navy Fighters by EA



nose up to climb, right? I have to increase throttle to speed up, right?" The answer is "no" on both counts. Anyone who has tried to fly the Learjet in **Microsoft**'s Flight Simulator knows that the jet can climb like a rocket with the nose firmly fixed on the horizon when not properly trimmed. "So how come I climb every time I point the nose up? How exactly do I make the aircraft descend with the nose pointed up?" I'm glad you asked.

Take your favorite aircraft from any simulation that models AOA effects and go up for a spin. Climb up to a moderate "base" altitude, say around 10,000 feet for jets and around 5,000 feet for propeller aircraft, and reduce speed. Reduce speed a lot. Slow down to near stall speed. Now, pitch the nose up slightly. In a prop-driven aircraft, raise the nose just slightly above the horizon. In a jet, such as Falcon 3.0's F-16, raise the nose about 10 to 15 degrees. If you continue to climb, reduce power more and watch your altimeter closely. As speed decays your altitude will begin to decrease, but by maintaining back pressure on the stick you can keep the nose above the horizon. The key to descending with a level or nose-high flight attitude is flying slow enough. If you climb when you pitch the nose up, reduce power.

Okay, level off again at the appropriate base altitude and reduce speed. Pitch the nose up approximately the same amount and let speed drop. During this exercise, do not let the nose move up or down; keep it firmly planted at a constant pitch. Watch your altimeter closely. When altitude begins to drop, increase power. If altitude still decreases, increase power until altitude remains steady. If the aircraft begins to climb, reduce power. Keep the aircraft at a steady pitch and keep working the throttle until you can smoothly control the descent, or sink rate, at will. It may take a little while, but eventually it'll feel as natural and smooth as any other flight maneuver. When you can do this, you've got half the landing skills you need.

Return to the appropriate base altitude. If you're flying Falcon 3.0, reduce speed to about 175kts; if you're using Tornado, try 140kts; Fleet Defender, use roughly 150kts; and if you're flying Flight Simulator 5.0's Cessna Skylane RG, reduce speed to roughly 75kts. If you're using some other software package, find the aircraft's stall speed and set your speed 10% to 20% above that. Next, continue to reduce speed until the aircraft descends with the nose level on the horizon (you may have to pull back on the stick slightly to keep the nose up). Now, take your hands off the throttle controls completely. Do not touch the throttle again during this exercise. Slowly, gently, smoothly pull back on the stick. Watch your airspeed closely. As the nose comes up, the airspeed drops. Pull the nose higher. Notice that as airspeed reduces, sink rate increases. Push the nose back to the horizon and watch your airspeed increase slightly. You've just seen how pitch can control airspeed, and specifically, how increasing pitch reduces airspeed, subsequently increasing sink rate.

Pull back on the stick again. As airspeed drops toward stall speed, pretend you're on final approach about to touch down when you suddenly realize you're too low; at this rate, you'll crash short of the runway or into the back side of the aircraft carrier. In desperation you yank back on the stick as hard as you can to get the nose pointed up. Give the stick a good hard yank and watch what happens...the aircraft stalls and falls like the Newtonian apple it has been reduced to. If you had been close to the ground, the stall would've almost certainly been fatal. What does this mean? It means when you need to increase altitude at slow speed, pitching the nose up will end your simulated flight career with haste. What do you do when you realize you're a bit short? Use power to control altitude. Increase throttle. This slows your sink rate. Be careful not to add too much power, though, or you'll start climbing.

One last exercise. Climb back to base altitude and establish a level descent again. Keeping the throttle fixed, gently and smoothly work the stick forward and back observing the changes in your airspeed. If speed drops too low, you'll stall. If speed gets too high, you'll collapse the gear on landing. Controlling your sink rate with throttle isn't enough, you must also control your airspeed. Spend a few minutes moving the stick back and forth with a fixed throttle until you can maintain a speed 15% above your stall speed. As with the throttle exercise, this may take some time, but eventually it will feel natural.

Now it's time to put these skills together. Climbing back to base altitude, initiate a level descent and practice controlling airspeed and altitude. Better yet, practice landings at an ILS-equipped runway. With the glide scope deviation (GSD) bar, or the horizontal line, you can instantly tell if you're too high or too low. Use the throttle to keep the GSD bar centered while using pitch to keep your speed just above stall. Using an analog throttle control makes this task easier, but the keyboard suffices as well. Remember to make small, smooth adjustments. When you make large adjustments the aircraft usually over-responds and you must make a larger counter-adjustment. The cycle escalates and eventually you're doing nothing but fighting the controls, and the approach is ruined.

You are now armed with one of the most basic landing skills: descent control. There are other landing skills equally important that we haven't discussed: traffic pattern, crosswind landings, navigation, ILS, and more. But hotshot pilots need to earn their wings, so go out there and put in some air hours. Happy landings!

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Circle Reader Service #55

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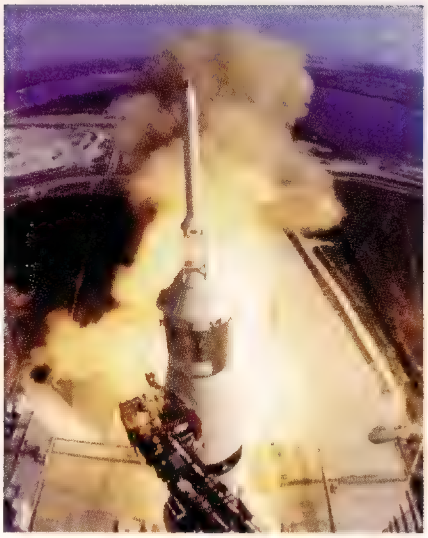
And Space, My Destination

Explore The Heavens In Microsoft's SPACE SIMULATOR

by Martin E. Cirulis


NASA Photo

WITH ALL DUE RESPECT TO ALFRED BESTER, THERE WAS A TIME DURING THIS CENTURY when the stars really did seem to be our destination; a time when space stations and moonbases were inevitable in the evolution of humanity, and the sight of courageous men planting flags on airless rock was considered inspiring, instead of being coolly deconstructed into its component political motives. **Microsoft**'s new entry into the flight sim arena, SPACE SIMULATOR, harkens back to those days just a short quarter of a century ago. For those among us who can remember school science texts from the early 70s, there was a future promised us in those pages, a bright and powerful future: humanity would claim world after world for its own in an unending headlong rush, and if we only studied hard enough there would be a place for us on those strange worlds, powerful starships and spinning stations. If that future had come, instead of being swallowed up by shiny new aircraft carriers and Savings and Loan buyouts, perhaps this simulator would be valid practice for the real thing—just as Microsoft's FLIGHT SIM 5 is thought to be a pretty good stand-in for flying out of the county airport.

MICROSOFT SPACE SIMULATOR

Microsoft
Space Simulator

Price: $49.95
System Requirements: IBM compatible 386-25 or better, 2MB RAM, VGA or SVGA graphics, 15MB hard drive space; supports Sound Blaster compatible sound cards.
Protection: None
Designers: Bruce Artwick Organization
Publisher: Microsoft
Redmond, WA
(800) 426-9400

HANDS-ON TRAINING

SPACE SIMULATOR is really two simulators in one. The first half of the package is the expected space flight simulator; the second is a telescope simulator, an interesting, if somewhat eclectic idea for software. Together they comprise a simulator that is meant to be more educational than action-based.

The flight sim is really a generic cockpit that can be set to various flight envelopes representing spacecraft both real and fanciful. Choice of controls are the traditional mouse, keyboard, and joystick, and most players will find themselves using a combination of all three. All the expected viewing angles are available (cockpit, chase, etc.), and the third of the screen dedicated to control readouts can be hidden with the touch of a key to provide the maximum panoramic effect.

The flight controls can be set for varying degrees of realism. Your ships will burn up real good if you are sloppy near an atmosphere, but there is an autopilot mode for most difficult or tedious maneuvers. Since space travel is pretty slow work, a time compression utility is very useful and has been made simple to use. Although the manual suggests letting the software run overnight and all the next day while you are away, just to get the real feel for a trip to the moon, most players pushing a Bussard Ram-Jet to Alpha Centauri will be glad a few mouse clicks will save them from having to bequeath the simulation to several generations of their descendants.

Your mix of spacecraft is large enough to please most tastes. There are the traditional representatives of NASA, the Apollo Command and Lunar Modules, the Space Shuttle and a Manned Maneuvering Unit; a couple of representatives from the drawing board, an Interstellar Bussard Ram-Jet and an interplanetary freighter; and a handful of fanciful craft ranging from a starfighter to an alien cruiser. To be honest, the maneuverings of space flight are subtle and careful enough that the differences in flight characteristics of these various craft are mainly lost to all but the most observant of pilots. In fact, most users will need to fly with the chase view on in order to appreciate the vehicle options available. For an education on the evolution of size and power in spacecraft over 20 years, you can practice docking the Lunar Command and Landing modules; once you achieve a close proximity, switch to an exterior side view, go into the options menu and change your craft from the Command Module to the Space Shuttle. It's impressive. This is a good example of the real use of this simulator. The meat isn't really in the flying simulation but in the various acts of exploration, putting this package more in the realm of a software toy. There are hours worth of sights to be seen, four space stations and bases on both the Moon and Mars, as well as dozens of worlds and moons to be explored and "photographed." Since the program allows you to save a screen in both .BMP and .PCX formats, many beautiful and original wallpaper pictures can be made to brighten your Windows

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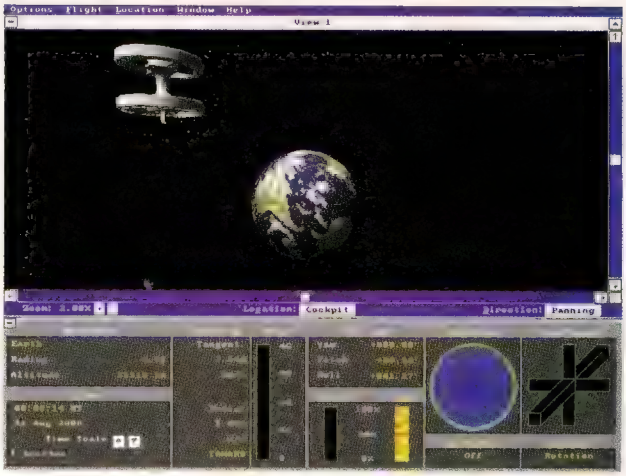
environment. And it isn't too hard to imagine new scenario disks being issued someday, adding new wonders and worlds for stargazers to ogle.

If there is a lack in this portion of the simulation it's the fact that there are only two pre-programmed historical missions: a shuttle launch and landing, and the Apollo Moon landing and dockings. A few more "classic" trips could have been provided both for variety and educational reasons; for instance, the original Mercury Missions didn't involve much intense flying *per se*, but a replay from the pilot's shaky perspective could have given real insight into the kind of courage it took to hitch a ride on a missile in untried technology.

The Astronomy part of the package is somewhat weaker. It serves as an actual telescope simulator. The operator can set up the telescope anywhere on or off the Earth and zoom in on some of the better sights around the galaxy. But certain compromises were necessary to make this feature viable; the flight sim style of embedding a high resolution image in a less detailed background can the telescope function into a game of find-a-GIF. However, it can serve the instructional purpose of teaching the user about night sky coordinates, how to use a clock drive, and where to viewing objects at various times of the year. If a youngster is clamoring for a real telescope, running them through this simulation is a good way of seeing if they have the patience and dedication to merit the real thing, sort of like buying your child a virtual puppy before committing to the real thing.

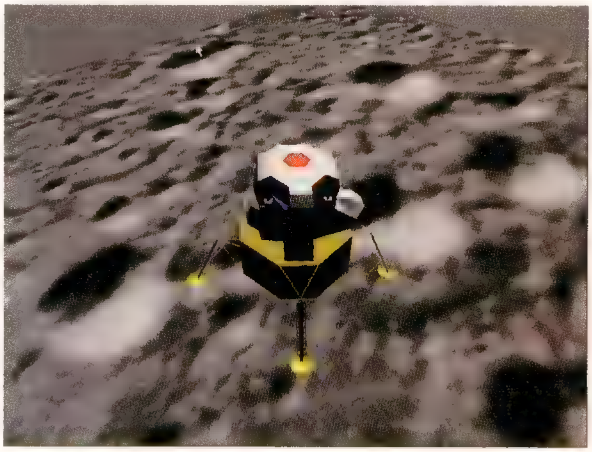


AIN'T SHE SWEET? The Good Mother's beauties are done justice by SPACE SIMULATOR's Super VGA graphics.

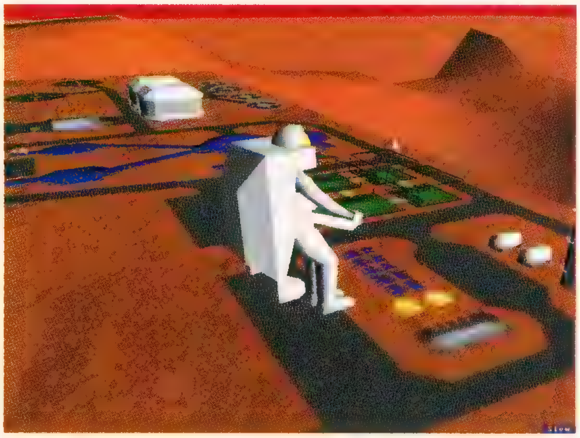
HAVE SPACE SIM, WILL TRAVEL

More so than in most flight sims, the manual for SPACE SIMULATOR is an integral part of the package. Not only does it serve to explain the controls and give detailed background on the machines and concepts the sim deals with, it also functions as a kind of lab book/scout journal for the player. You learn how to use various flight and recording aspects of the sim by way of detailed mission instructions that allow a player to achieve something while figuring out how things work.

The documentation is strongly reminiscent in tone to those classic, young adult, SF stories of the late 50s and 60s, when Science was king and everything had a Great Explorer feel to it. When your mission is to take postcard photographs of the planets circling Polaris or fly under the flare arcs of the angry star Achenar, you begin hoping you will be able to stop in for the revolt on Alpha Centauri or be able to find out if the moon actually is a harsh mistress.



CRATER FACE A lunar lander touches down on the moon's surface. As you can see, the edges of the more interesting images can be a bit rough when viewed up close.



JOHN JETPACK OF MARS Equipped with personal flight gear, you can get a taste for commuting in a future Martian colony.

The tone may become annoyingly Disney-esque to the more experienced and jaded gamer, sort of an SF version of Waldo the Buck-Toothed Beaver, but there is potential here for a real piece of family software. A clever parent could get a child to spend hours on virtual "field trips," learning good science. The graphics are of a high enough quality, usually, that a child's innate sense of wonder will deter the usual suspicion of all things educational. The stark beauty of watching your ship slowly disappear into the shadow of the Earth while the stars burn steadily all around will entrance even an adult—especially one who remembers those first, glaring, jerky pictures from space, a rocky moon being conquered by good men with bad hair.

CAUTION: ASTEROIDS AHEAD

SPACE SIMULATOR is not without weak points, however, and most of those have to do with detail and repetition; the philosophy of science behind the design limits its value as a game. Since the game is more of an exploration toy than a flight sim, it is susceptible to being played out; "been there, done that" is a phrase that has serious implications for long-term play here.

It is unusual that this sim is issued on only three disks. Astronomy packages are notorious memory hogs, due to all the data, images and complex modeling. An extensive CD-ROM version would have cleared up nagging details like a moon that only has one image that just gets blurrier if you try and zoom in with the telescope. While a real telescope will blur as well, even a four-inch hobby piece will still reveal sharp mountain crags on a good night. Multiple, over-lapping im-

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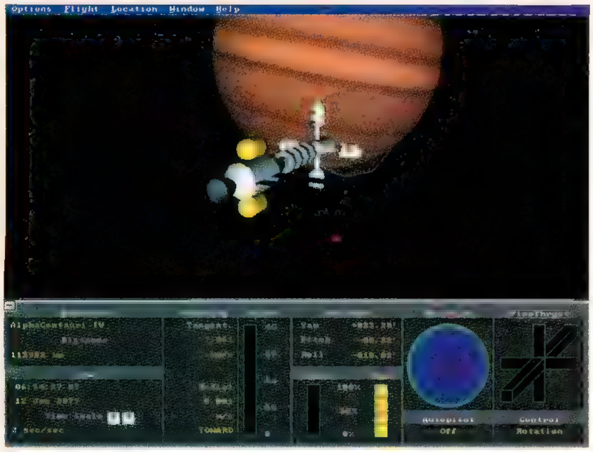

BUSSARD-ING TO ALPHA C The hypothetical Bussard Ram-Jet is on course for Alpha Centauri IV. Using the time-compression option, it can be there in minutes.

ages would have helped to suspend disbelief a little further.

The modest size of the initial data means a fairly limited number of places to go, though I must say I was impressed with the number I did find. Of course, if you've orbited one Gas Giant, you've orbited most of them, and a simple increase in the number of locations would not do much to lengthen your interest span in the sim. No, what is needed here is a less conservative view of the universe, one with a few surprises, like a Roche-World or perhaps the rude surprise that the red-giant you went to orbit actually has a neutron star orbiting inside it. Of course, it takes a bit out of your sense of exploration when a menu shows you every place you can possibly go and what is basically there. For future versions, Microsoft might consider creating missions where there are more surprises than just how cool everything looks.

"NOT BECAUSE THEY ARE EASY..."

These flaws, while detracting somewhat from the experience of SPACE SIMULATOR, are not fatal for people who love the subject matter to begin with. After all, this sim's terrestrial brother is on its fifth version, and most fans were there from the beginning. Though there is not much here for the thrill-seeker or the sophisticated sim player, there is definite potential for enjoyment in the young adult audience. Although the learning curve is somewhat long, an interested adult guide can make this a plus instead of a minus as the sim takes on the aspect of a family activity instead of simply a game.

Maybe the dream of space is gone for those of us who are adults now, and it may even be elusive for our children; the world seems to be reveling in an era of regionalism, short-sightedness and mediocrity that may take decades to come out of. But if humanity is to stride forth again in giant steps, it will take little things to keep the dream alive: little things like old textbooks, old episodes of Star Trek, and sims like this one. ◆

THE EDITORS SPEAK

MICROSOFT SPACE SIMULATOR

RATING ✸✸✸✸

PROS Strong documentation and general graphic wow-power make this a terrific learning tool for newcomers to the cosmos.

CONS For the serious star-gazer, there are much stronger astronomy programs available.

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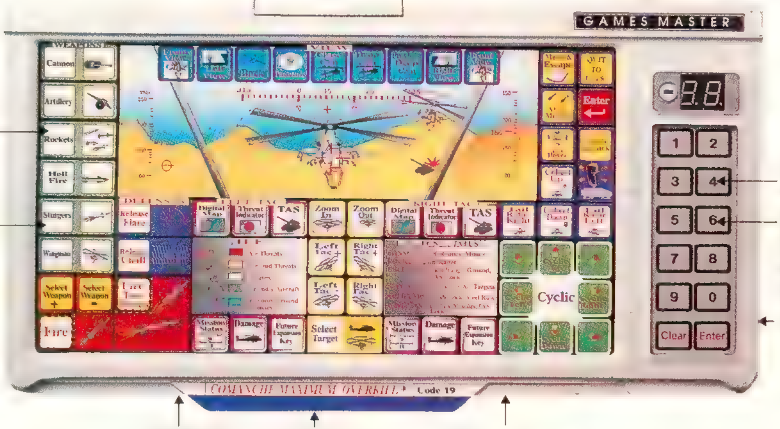

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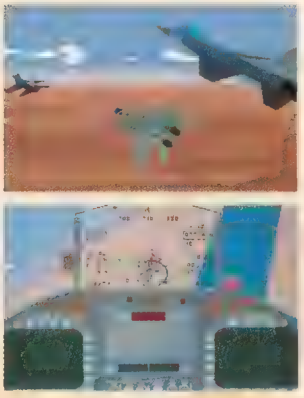

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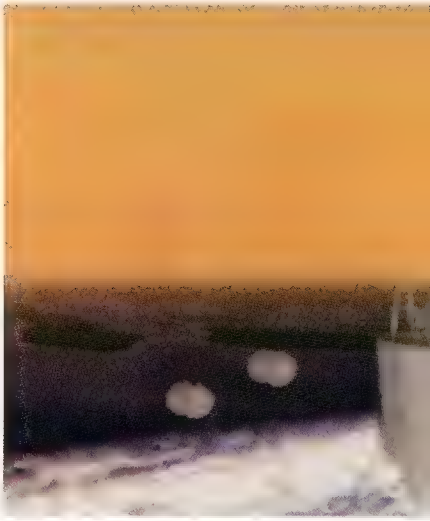
Das Simulation

Run With The Wolf Pack In ACES OF THE DEEP

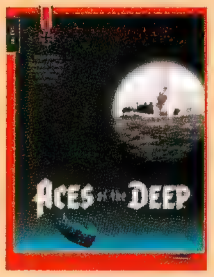
by Kevin "Sumo" Turner



> *"Of the 40,000 German U-Boat men in World War II, 30,000 did not return."*
> *—Lothar-Günther Buchheim, from the book, Das Boot*

ONE OF THE MOST FAMOUS SUBMARINER HANG-OUTS IN THE UNITED STATES IS THE "HORSE AND Cow" in Vallejo, CA. Behind the bar, among all the plaques and paraphernalia of various boats, is a small monument to the submarines *Scorpion* and *Thresher*. The plaque reads "*USS Scorpion* and *USS Thresher*, still on patrol." As I sat at the bar and pondered the U-boats and the men who sailed them, and as I recalled the above quote from *Das Boot*, the full impact of those startling numbers came home to me. Three-fourths of the U-boats that went to sea during WWII are still on patrol, with a ghost crew the size of a small city! I tried to come to grips with the magnitude of their sacrifice, but could not. I could only include them in my customary toast and hope it was enough.

ACES OF THE DEEP



Price: $69.95 Floppy, $59.95 CD
System Requirements: IBM compatible 386DX-33 (486 recommended), 4MB RAM, VGA graphics, mouse; supports General MIDI, PAS, Roland MT-32, and Sound Blaster compatible sound cards.
Protection: None
Designers: Mike Jones, Langdon Beeck, Dennis Kilgore, Alan Roberts
Publisher: Sierra/Dynamix
Bellevue, WA
(800) 757-7707

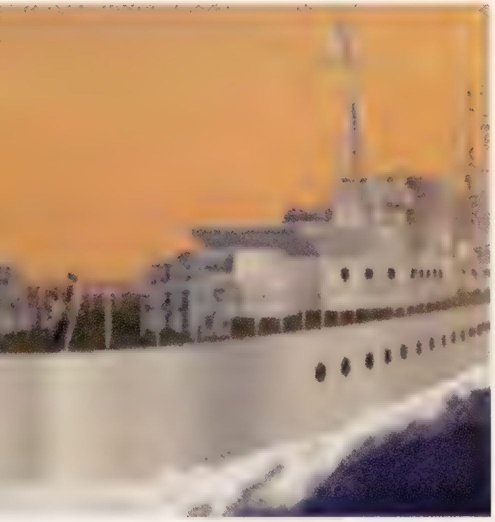
ACES OF THE DEEP from Dynamix recreates the Second World War as fought by the men of the German Submarine Service. If there is any way to truly appreciate the trials of WWII submarine life, this is it. ACES OF THE DEEP is far from being a mere model of a U-boat; it is a model of the U-boat *experience*. Having served on submarines of a decidedly more modern Navy, I have come away with a renewed sense of the history of the Submarine Service and a genuine appreciation for my brethren of another time.

But ACES OF THE DEEP is not just a sobering tribute to the past. It is a highly enjoyable game that submerges the player in a U-boat for excitement on a grand scale. I've played every submarine simulation to date in the hope that a company would pay as much homage to submariners as is paid to aviators; Dynamix has finally made my dream into a hot, cramped, tense, and claustrophobic reality.

The game is an exercise in strategy in which the player tries to balance the abilities of the boat and the crew against a mission that varies in difficulty by historical time-frame. The mission is important, but survival against strong odds is the real reward. Pitting oneself against a well-armed opponent with only stealth and the third dimension of depth as advantages is a true challenge. Following a convoy for two days while awaiting optimal conditions is not uncommon. Patience is rewarded with opportunity, but using that opportunity brings the wrath of the escorts.

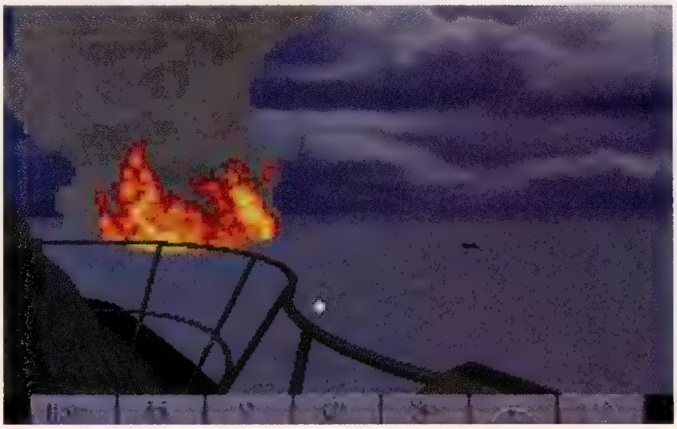
TO HISTORY BE TRUE

The level of historical faithfulness is almost fanatical. The chart provided with the game is a recreation of an actual U-boat patrol chart. The emblems on the U-boat conning towers are the real McCoy. The historical encounters you will face actually occurred, and occurred through the actions of the U-boat cap-



tains who are described in the game. The career you embark upon is right out of those sub-captain's diaries, from the types of U-boats commanded, through patrols you will thoroughly enjoy, but will be happy to see end.

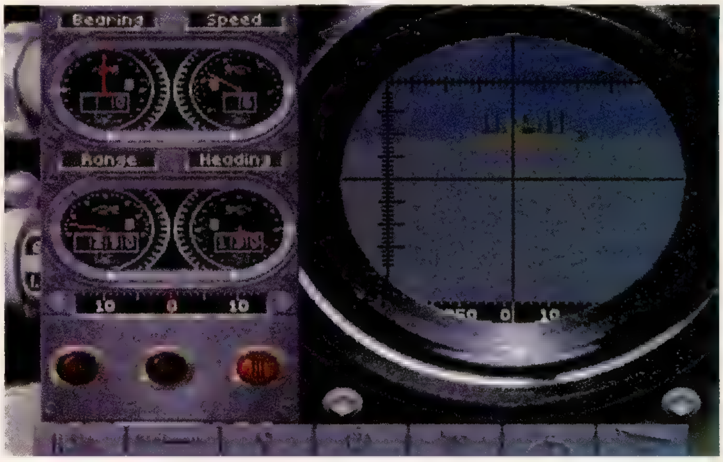
This slavish attention to detail extends to the atmosphere of the simulation. The sounds of the game have to be experienced to be appreciated. The watery death throes of a sinking ship are eerily recreated, and the approach of high-speed screws will raise pulse rates. All of the important crew members will respond to your orders with digitized speech, and there is even an option to hear the crew speak in German! There are no subtitles, but the messages that the crew delivers are not hard to decipher, and this little touch of realism draws you even deeper into the game. Furthermore, you can select from a menu of musical tunes to add cinematic drama to the game. Unfortunately for *Das Boot* fans, "Road to Tipperary" could not be included as the copyright is unclear.



ST. DONITZ'S FIRE An oil fire from a sunken tanker lights up the grey skies of the North Atlantic. The views from the decks, with rolling seas, varied cloud cover, and starry night skies are quite dramatic.

Perhaps the best way to communicate the detail of the graphics is to discuss the periscope. As the periscope is raised and clears the ocean surface, seawater will drain from the glass in sheets. While looking through the periscope, swells occasionally hide the target from view, much as they do in reality. Even the most heartened seagoer may become queasy while on the deck, as you can almost feel the undulation of ocean, so convincing are the swells. The weather varies from clear visibility for miles, to fog so dense that it blankets even the AA gun on the deck! The stars and the moon are clearly visible at night, if not obscured by clouds.

Several beautiful cinematic sequences are sprinkled throughout the simulation, including scenes of torpedoes being launched, as well as opening and closing sequences to patrols. The torpedo launching from the bow tubes is interesting, but the shot from the stern tube is thoroughly impressive. I often use stern tubes against unescorted merchants, just to watch the sequence. At the beginning of a patrol, the player's U-boat puts to sea with the selected emblem proudly displayed on the conning tower. On return from patrol, victory pennants are flown demonstrating the number of ships sunk. If awards are due, a newspaper headline appears with the player's name; if the boat is lost at sea, the newspaper reports on your passing.



PREY IN THE GREY A lone Allied tanker will make an easy prize for this U-boat skipper. Early in the war, such easy kills are common, but things will change dramatically as the war drags on.

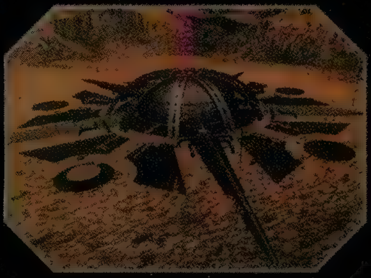
A WAR IN EIGHT PARTS

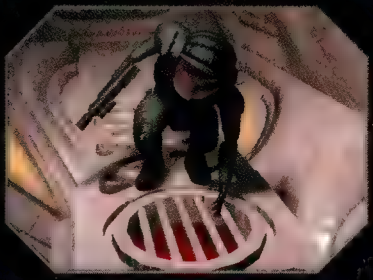
ACES OF THE DEEP divides the Second World War into eight time frames representing different stages of the war at sea. The time frames reflect the attitude of the U-boat fleet, as well as the ease or difficulty with which missions were accomplished, technological advances, and the gradual advancement of Anti-Submarine Warfare. These historical divisions from the perspective of the U-boats provide you with a deeper appreciation of history, and an idea of what to expect at sea.

From the main interface, you have the option of choosing a single mission, starting a career, looking at the Hall of Fame, or exploring the Vehicle Preview. The Vehicle Preview is an opportunity for you to check out the capabilities of the opposition, as well as the capabilities of different classes of German submarines. The graphic depictions of the vehicles can be viewed and rotated on all three axes. The Hall of Fame presents a glimpse at famous U-boat captains, with short synopses of their respective careers.

Having chosen a single mission or a career, the single most critical step is selecting the level of realism. Setting realism not only affects the level of sophistication of the enemy intelligence, but determines how much work you must do and how much information is

THE RULES ARE SIMPLE.





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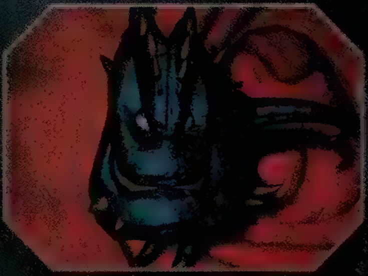
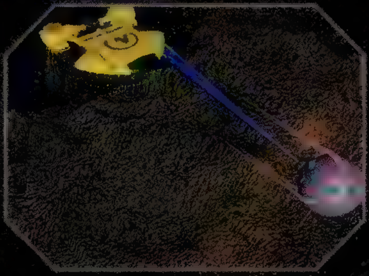
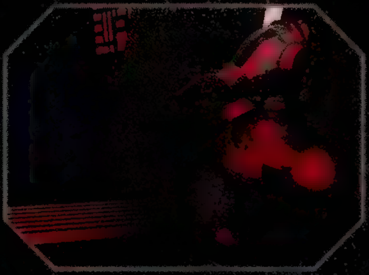
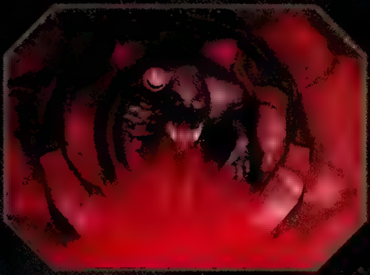
- Created by Argonaut, who brought you the Special FX chip in Nintendo's top-selling Star Fox™.

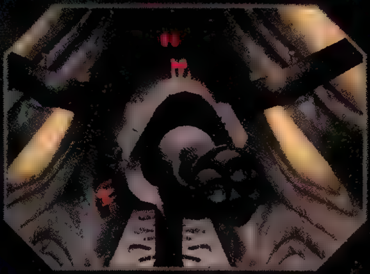


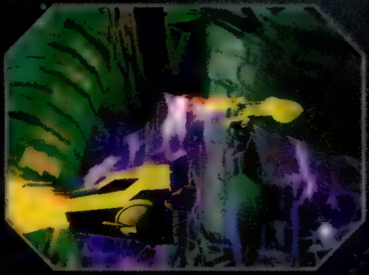






EVERYTHING'S OUT TO GET YOU.





It's 2023 and the Earth is dying. A survey ship, the SS Amazon, takes off to locate an alternative planet and disappears. Now, you must discover what hit it. Oh yeah, while you're at it, bring back an alien specimen, find its source and destroy it.

Just don't breathe too loudly--it might be tracking you. Something sure is. Man-eating slime pools? Artillery Spiders with twin-barreled lasers? Jellied Suckers that inhale entire ships? Or electric Distortion Rings that fry you to a crisp?

Or is it one of those really ugly things that we don't even want to mention?

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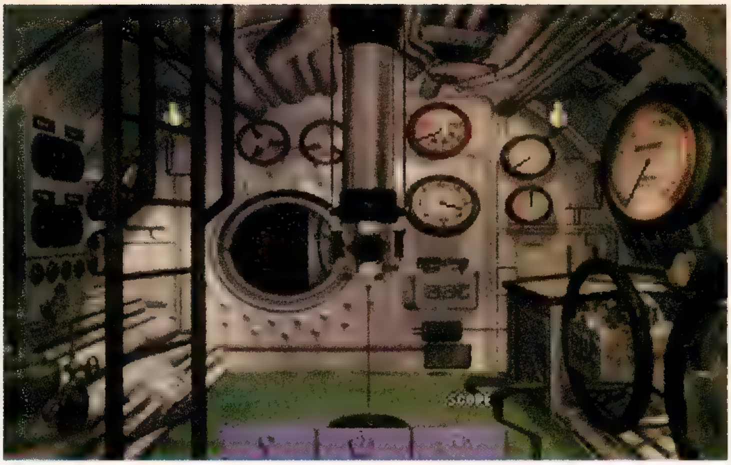
available. For instance, at a lower level of realism, a target-convoy's movements are easily charted while underwater, as well as the movement of the escorts. At a higher level of realism, these detailed, radar-like charts become mere bearing information (leaving the player to estimate range and enemy intentions), and accurately depict the level of information upon which a U-boat skipper had to make life and death decisions.



COMMAND CENTRAL The main interface accurately models the bridge of each submarine type, in this case a Type IX U-boat from the later part of the war.

The single missions are divided into three sections. The first is Historic Missions, and these allow the player to attempt some of the acts that made the U-boat so infamous with the Allies. The second is a Convoy Encounter, a great training ground for the player's career. The third choice is a Warship Encounter, and pits the player against a tough group of warships. "Challenging" is too weak a word to describe a diving dance with a pack of Destroyers and their depth charges.

A tutorial mission can be found among the Historic Missions, providing the player with an easy introduction. While the tutorial is nice and the documentation fairly complete, it will take some time before newcomers to submarines will be completing missions successfully. Like a detailed flight simulation, Aces of the Deep requires study and practice, but it is well worth the effort.

SUB-HUMAN LIFESTYLES

The Career mode is the highlight of the game, being both frustrating and thrilling. As a neophyte submarine skipper, you will be granted command of a Type II U-boat. When and if you survive a series of missions, you will progress in rank and be given command of more advanced submarines, as well as awards commensurate with your accomplishments.

Having chosen a career, the choices offered include a War Patrol, going to the nightclub, and viewing the tonnage leaders. Going to the nightclub is interesting, as the latest gossip is heard and historical references are given, and it acts as a barometer for the mood of the submarine force and the progression of the war. The tonnage leaders scoreboard tracks the player's progress against historic U-boat aces.

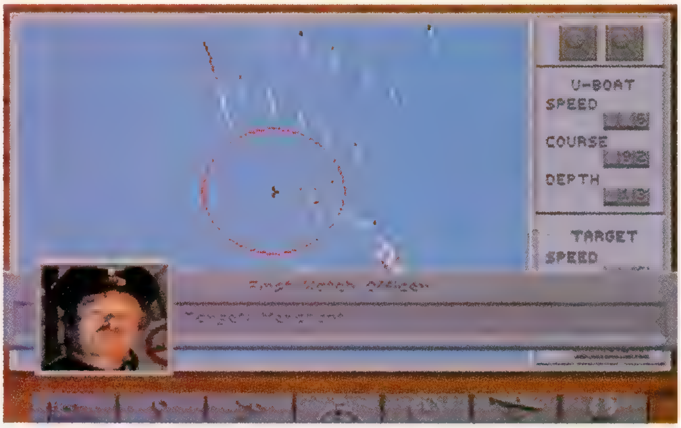
War Patrols are the heart of the game, and where the player is most likely to feel the level of immersion the designers intended. Long patrols are thankfully shortened with a time compression utility, which turns week-long treks into minute-long hops. Patrols are begun by assignment of a patrol area. The patrol area is based on the movements of convoys, and provides the player with an excellent starting point for hunting. Having arrived at a patrol zone, everything is left to the discretion of the U-boat commander. One needs to pay close attention to the radio traffic, as clues to convoy movement either through or in the vicinity of the assigned patrol area are given, as well as the location of convoys and U-boat brethren throughout the Atlantic.

The interface is mouse driven, with hot-keys provided. Maneuvering a U-boat is very easy, and takes little practice to learn. The hot-keys make certain time-critical tasks, such as periscope observations, very efficient. In general, the interface is well designed, although there are a few irritations, such as instrument "windows" that cannot be moved and often obstruct the view of important screens (the time-compression dial is the most flagrant of offenders).

Winning the game means surviving the war. There are no final accolades, nor are there any medals or congratulations. There is merely a message from Admiral Dönitz to inform you that the war has ended. I found this ending to be refreshingly accurate, as surviving is a reward that three-fourths of the men of the U-boat fleet never received. It is a fitting ending to a game whose faithfulness to history never falters.

The manual that accompanies the game is on par with other excellent materials from Dynamix simulations. The 200 page, wire-bound booklet provides historical anecdotes, game instructions, a glossary, index, and a wealth of wartime photos. The historical time-frames are described in the manual, providing the player with a reason for the level of difficulty of the time-frames. There is information on Allied convoy tactics as well, which will prove useful throughout the game. The manual is well researched and thorough, and contains a bibliography that points to many hours of additional reading.

A CD-ROM version should be available by the time you read this. Included is the entire manual on CD, six new historical missions, a cinematic opening sequence, and maps that depict historic battles and ship sinkings. There is even an interactive U-boat tour. But the highlight of the CD is 40 minutes of video



FEEDING FRENZY A U-boat has found a tonnage mother lode in an Allied convoy, but it had better beware of the four Destroyer escorts.

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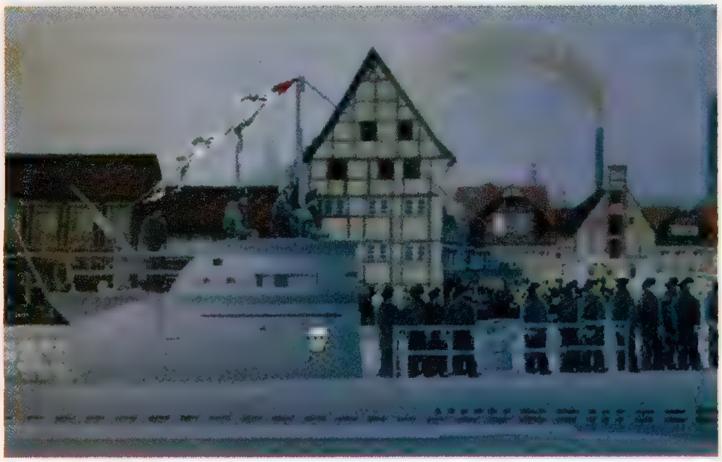

HOMECOMING PARADE If your crew survives a patrol, you'll be given a nice welcome home. The seven white flags indicate that this boat had a very good run of luck.

interviews with surviving U-boat captains. These interviews are original, made expressly for the game. Included are segments with Otto Kretschmer and Erich Topp, whose most famous missions are included in the game. One cannot help but be touched by these men as they describe the pressures of command, heroic attempts to rescue enemy sub crews, and their fatherly affection for the 17- and 18-year old "men" that comprised their crew. Kudos are due to Dennis Kilmer, whose work as historian proved invaluable and is apparent in these "multimedia enhancements," and throughout the game.

Dynamix has announced a mission disk for early '95. This disk will provide the player with detailed access to the Mediterranean, new missions, and the opportunity to captain a Type XXI U-boat, a craft that saw very limited use during the war, much to the delight of the Allies.

Whether in career mode or playing a single mission, ACES OF THE DEEP is, in my mind, the new, undisputed champion of submarine simulations. Historical accuracy and playability work together, without stepping on each other's toes, providing the player with a unique experience that is as educational and enlightening as it is fun and exciting. The next time I'm in the "Horse and Cow" I might include the ACES OF THE DEEP design team in my toast, as they have shown submariners the highest tribute in this most accurate, playable, and remarkable simulation.

Kevin "Sumo" Turner (IC1 SS/DV) is a former submariner, DSRV crewmember, and Navy diver.

THE EDITORS SPEAK

ACES OF THE DEEP

RATING ✸✸✸✸✸

PROS Strikes a near-perfect balance of historical accuracy and playability. Has a powerful graphic and sound package, and the CD version uses multimedia ideas to truly enhance the experience. Buy the CD if you can.
CONS The interface has its awkward moments.

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Flying By The Book

Between The Covers Of Two CD-ROM Aviation Encyclopedias

by Tom "KC" Basham

AVIATION ENTHUSIASTS WHO ARE ALWAYS ON THE LOOKOUT FOR A COFFEE TABLE BOOK OR VIDEOTAPE have a new market to consider: CD-ROM. **Spectrum HoloByte** and **Maxis** have both made virgin flights into the world of multimedia education and entertainment with their release of WILD BLUE YONDER and WARPLANES. Neither product is a game *per se*. While WARPLANES does include some limited flight simulation, both products are primarily multimedia reference books.

WILD BLUE YONDER 1: 50 YEARS OF G'S AND JETS is best described as an episode of "Wings" from The Discovery Channel. WILD BLUE YONDER focuses on four post-W.W.II eras: The Jet Age, Vietnam, Desert Storm and Tomorrow. Each era includes five aircraft. The Jet Age discusses the XP-59, F-86, X-1, Me 262 and B-47; Vietnam details the B-52, F-105, A-6, F-4 and SR-71; Desert Storm features the F-15, F-16, F-14, F-117 and MiG-29; Tomorrow focuses on the YF-22, V-22, X-31, B-2 and X-29.

Each aircraft in WILD BLUE YONDER comes with a short, minute-long video segment resembling a standard introduction to any episode of the aforementioned "Wings." The video is displayed using QuickTime for Windows (supplied on the CD-ROM), which provides standard fast forward and rewind functions. The video files are readily accessible on the CD-ROM and can be viewed at any time using QuickTime without actually invoking the main program. Although most pictures are displayed smaller than the screen to preserve clarity, you have the option of magnifying most of them to full screen size.

After the video, each aircraft entry has seven categories of information:

- Stories, a collection of narratives about the aircraft, usually including design issues, combat accounts, and stories on famous pilots.
- Specs, your standard aircraft specifications such as top speed, range, etc.
- Performance, which uses bar graphs to compare speed, range, climb rate, etc. against the other aircraft in the selected era.
- Cockpit, in which a photo of the cockpit is shown. Moving the mouse over instrumentation identifies the selected device.
- Black box, as the name implies, focuses on crashes of the selected aircraft type complete with numerous photos.
- Scrapbook, a potpourri of photos of the selected aircraft, usually showing famous pilots, test pilots, interesting situations, etc. Although only 20 aircraft are discussed, each entry is very detailed. Many entries include a series of voice recordings from significant personalities involved with the aircraft discussing topics from performance and handling to design issues.

Ambiance is a large part of the WILD BLUE YONDER experience. Roughly half the manual is a history lesson detailing interesting anecdotes from the time periods covered by the CD-ROM, many not even related to aviation. For example, Soviet Premier Nikita Kruschev's famous "Whether you like it or not, history is on our side. We will bury you," invites snickers from post-Cold War westerners. You'll also find facts like, on October 29, 1945, the first US-made ball-point pens went on sale at Gimbel's in New York. They cost $12.50 each and sold out rapidly. Meanwhile, the entire program plays ambient sounds in the background. Sound clips, ranging from songs popular during the chosen era to excerpts from famous speeches, help communicate the "feel" of the era in question. What does all this have to do with aviation? Not much, but it does a great job of revealing the attitudes and trends of society concurrent with aviation developments.

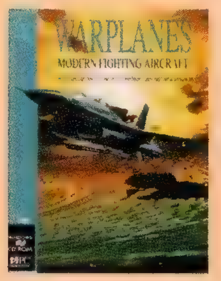
Overall, I greatly enjoyed WILD BLUE YONDER. A preview disc of the next title in the series, WILD BLUE YONDER: THE GOLDEN AGE OF FLIGHT, looks even more interesting, spanning aircraft from the Wright Flyer and Curtiss June Bug through the Sopwith Camel and the P-51. Although only the P-51 was functional in this preview, WILD BLUE YONDER 2 promises over 20 pre-jet aircraft. The W.W.II sounds were quite enjoyable, and the P-51 entry was wonderfully detailed (including a photo of the dual-fuselage P-82 prototype, a long-ranged version of the P-51). Of course, the obvious criticism of the WILD BLUE YONDER series is, "What do I do after

WILD BLUE YONDER

WILD BLUE YONDER

Price: $49.00
System Requirements: IBM compatible 386-33 or better, 4MB RAM, SVGA graphics, 2MB hard drive space, mouse, CD-ROM,Windows 3.1; supports Sound Blaster compatible sound cards.
Designers: Digital Ranch
Publisher: Spectrum HoloByte
Alameda, CA
(800) 695-GAME

WARPLANES



Price: $59.95
System Requirements: IBM compatible 386SX or better, 4MB RAM, SVGA graphics, mouse, CD-ROM, Windows 3.1; supports Sound Blaster compatible sound cards.
Developer: Maris Multimedia
Distributor: Maxis
Orinda, CA
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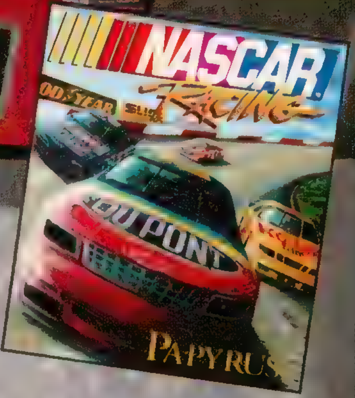

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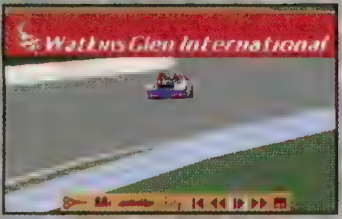

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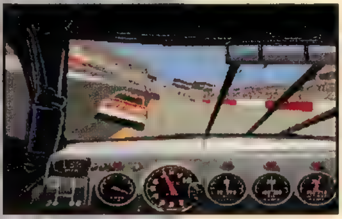

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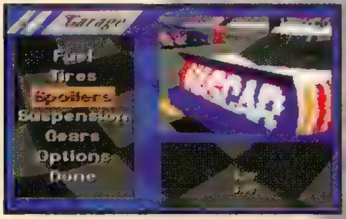

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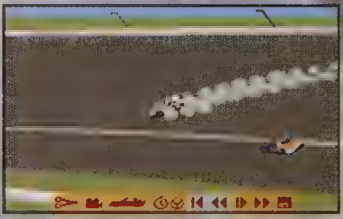

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System Requirements:

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**** Most major sound cards supported**

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Double spin CD-ROM drive
VGA: 386 33MHz or greater, 4MB RAM, MS-DOS 5.0 or later, VGA, hard drive with 8MB free
SVGA: 486 66MHz or greater, 8MB RAM, MS-DOS 5.0 or later, VGA, hard drive with 8MB free

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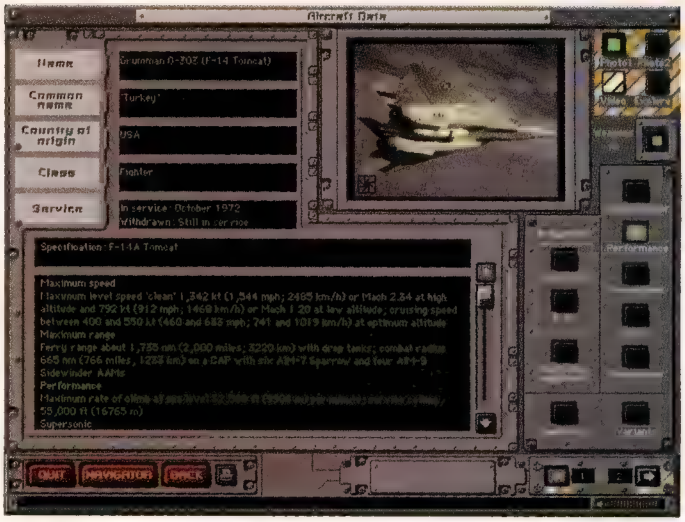
Circle Reader Service #153

I've watched everything?" Simple: watch it again. Like any good aviation book, you can thumb through it again and again. If you tape episodes of "Wings" and watch them over and over again, you will not be disappointed in WILD BLUE YONDER. If you can't stand to crack the cover of the same book twice, the WILD BLUE YONDER series probably isn't for you.

JANE'S AIRCRAFT ADDICTION

WARPLANES is more akin to *Jane's All The World's Aircraft* than to "Wings." It is a reasonably thorough, on-line database of 530 aircraft and 275 weapons systems. Each entry gives the obligatory statistical information on speed, range, powerplant, etc., as well as a two or three paragraph discussion of the aircraft and its variants, though you won't find flight model information, V-N diagrams, or other hard performance figures. Each aircraft has at least one photo, many have two, and quite a few have short videos. Many entries also have 3D renderings of the aircraft that you can rotate and view from all sides. The 3D renderings are good, but have a computer-rendered look to them. The aircraft database is indexed by category (such as attack helicopter, fighter, bomber, trainer, etc.), manufacturer, whether the aircraft is still in service or not, whether the aircraft is nuclear capable or not, and/or country of origin. You can locate aircraft either by setting one or more attributes, searching directly for the name of a particular airplane, or stepping through all 530 one by one. I ran the program from a double-speed CD-ROM and suffered no significant delays or pauses during searches. The documentation does suggest that the program will run faster if some files, totaling about one megabyte, are installed to your hard disk.

WARPLANES is divided between three topics: Cold War, Arab-Israeli Conflicts, and Gulf War. Using the topic menus, you can reduce aircraft searches to the set of aircraft applicable to that topic, view numerous computer-generated graphics of the aircraft used in that conflict, watch a set of highly stylized, computer-generated animations representing aircraft operations, and watch detailed history lessons called "War Reports." The animations, such as the one of F-16s dropping bombs on an Iraqi target, were a bit weak, but the War Reports were



Grumman G-303 (F-14 Tomcat)
'Turkey'
USA
Fighter
In service: October 1972
Withdrawn: Still in service

Specification: F-14A Tomcat

Maximum speed
Maximum level speed 'clean' 1,342 kt (1,544 mph; 2485 km/h) or Mach 2.34 at high altitude and 792 kt (912 mph; 1468 km/h) or Mach 1.20 at low altitude; cruising speed between 400 and 550 kt (460 and 633 mph; 741 and 1019 km/h) at optimum altitude
Maximum range
Ferry range about 1,735 nm (2,000 miles; 3220 km) with drop tanks; combat radius 665 nm (766 miles, 1233 km) on a CAP with six AIM-7 Sparrow and four AIM-9 Sidewinder AAMs
Performance
Maximum rate of climb [illegible]
55,000 ft (16765 m)
Supersonic

DATA DUMP If you have a crying urge to know the powerplant specs of an F-14 Tomcat, and a book just isn't good enough, WARPLANES will deliver the proper strike package.

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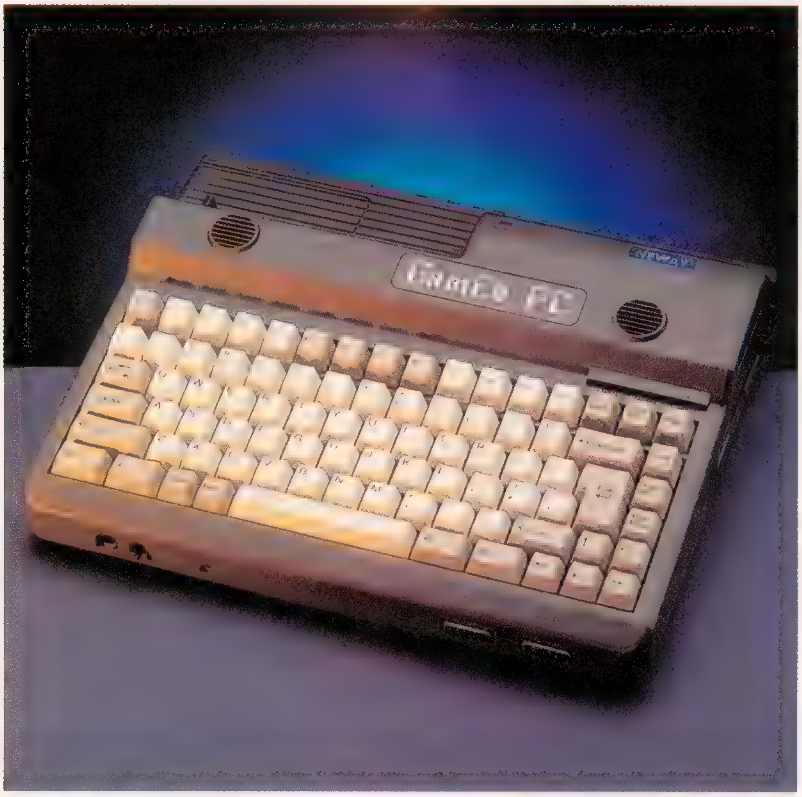
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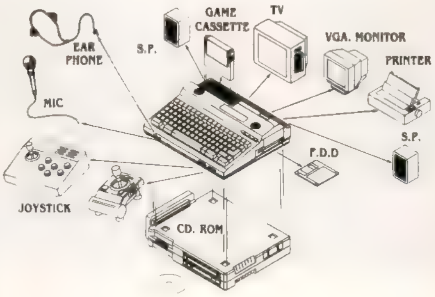
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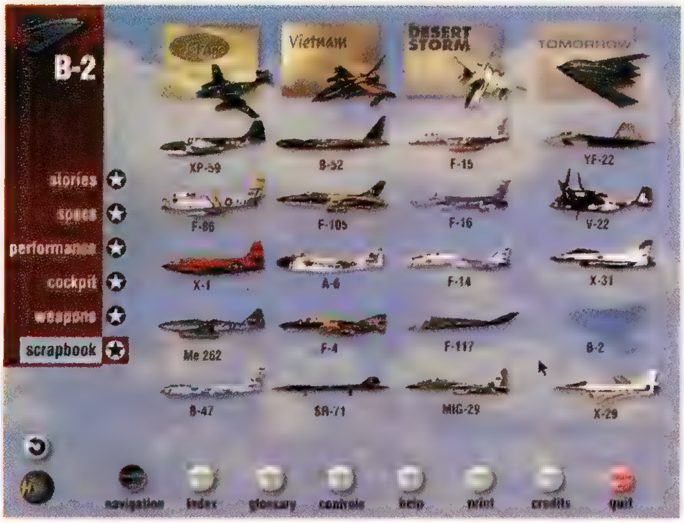
The software shown above is not bundled with this system, but is compatible with the GamEd PC.



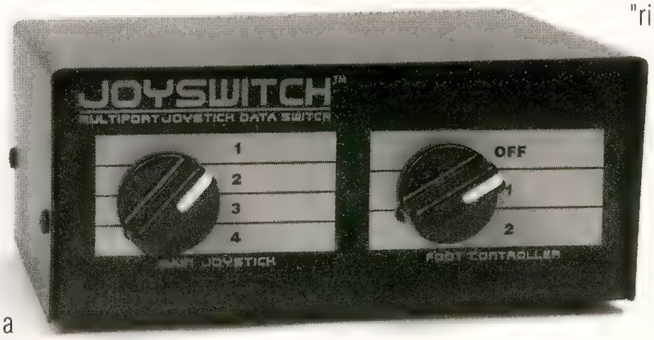
JOIE DE VROOM Wild Blue Yonder has 20 aircraft from four eras and lot of style packed into its CD-ROM disc.

outstanding. Twenty-three movies, each lasting two to three minutes, give fairly detailed accounts of battles and operations during the Cold War, various Israeli military actions, and the 1991 Gulf War. The movies are filled with interesting photos, maps, charts and video footage. Orders of battle for the three conflicts are given, breaking down aircraft types and quantities per airbase for both sides. Warplanes also includes a "Print" button that allows you to print the screen at any time.

Finally, Warplanes includes three flight simulators designed with **Domark**'s Flight Sim Toolkit. The Su-27, A-10, and C-130 are all available in either 640x480 or 320x200 resolution. These are standard Flight Sim Toolkit-style flight sims: entertaining, reasonably well-modeled, but rather limited in long-term gameplay. FST tools are not included on the CD-ROM, only the three executable simulations.

Warplanes has a very thorough database that is as accurate as any you'll find at the bookstore. The program does suffer a few glitches and inaccuracies, however. Several times the palette went crazy when I switched menus; the resultant screen was unusable, but moving back to the previous screen, then back to the desired screen solved the problem. I did find a few inaccuracies in the otherwise excellent War Reports. For example, a still photo of an A-7 appeared on the screen while the narrator announced "The A-6 Corsair..." Compared to the average news report or newspaper, though, the errors were extremely rare, especially considering the amount of data provided.

In summary, both of these multimedia titles are enjoyable products filled with interesting and unique photos and video clips. Wild Blue Yonder focuses on fewer aircraft while providing more detailed information on those craft, while Warplanes lists the standard assortment of brief statistics for a much larger number of aircraft. If you're a fan of a particular aircraft, such as the F-4 or the X-29, then Wild Blue Yonder will probably interest you more. If you're looking for hard performance data on lots of aircraft, Warplanes is the better choice. Warplanes certainly holds its own against any book in the same price range.



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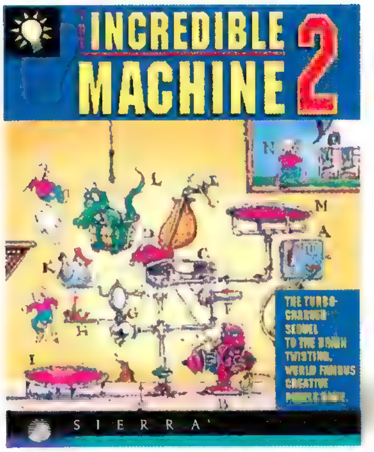
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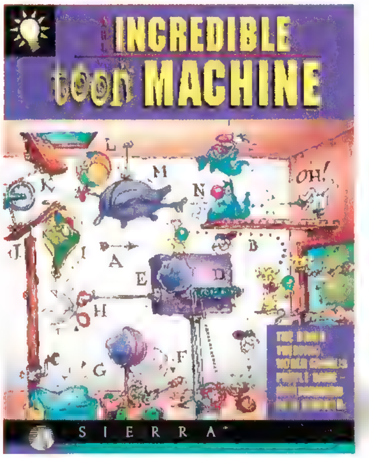
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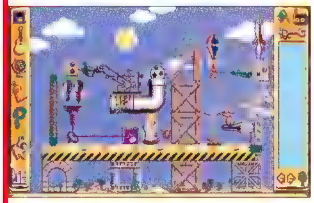

It's hard. It's addictive. And it's 3 a.m. If only you'd stopped at the last puzzle. Why didn't you stop? Is it the fear of the machine stumping you? Is it the simple thrill of watching your creation in action? Is it doing better than your kid? (Who, by the way, got the ball to drop through the hoop *before* dinner.)

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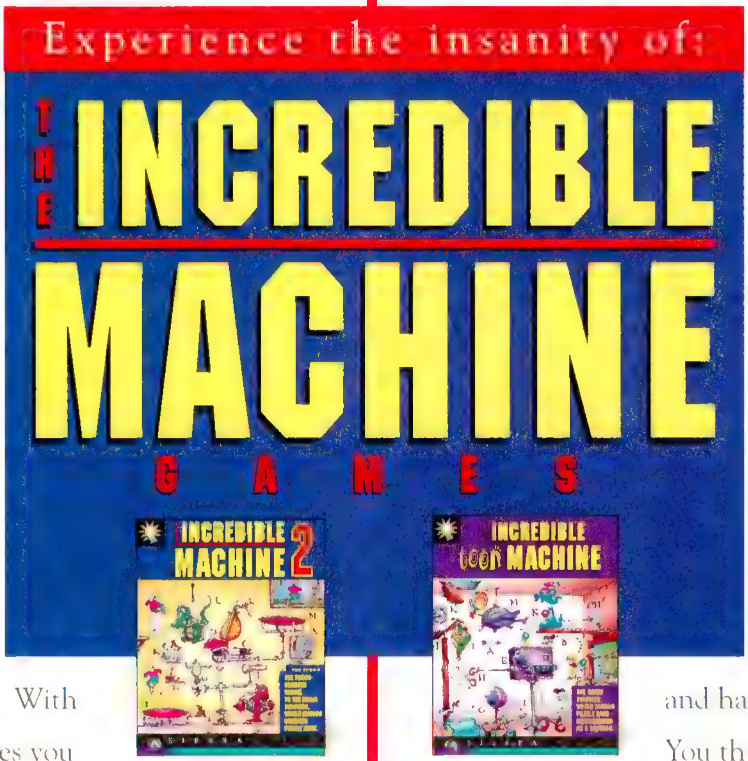

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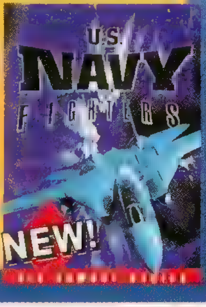

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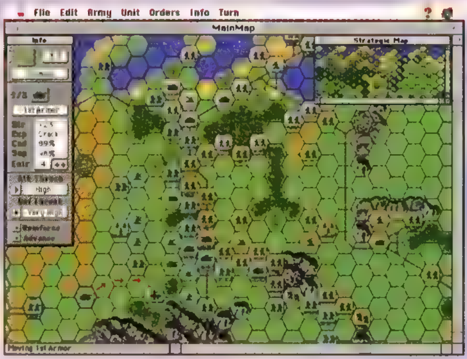
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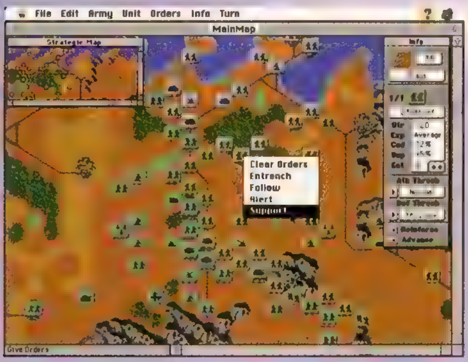
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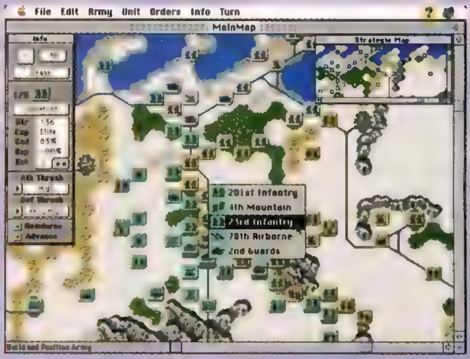
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Windows Of Opportunity

BROADSIDES & GRIPESHOT

Before reading further, sit down. Take a few deep breaths and relax for a moment. I fear that I'm about to make many readers want to fling this magazine across the room. You see, I believe that computer war and strategy games have a bright future running under Windows.

Yes, Windows, that oft-maligned interface that puts a curtain between a user and his machine, that memory eater, that icon-based system that "real users" detest. Although it's the OS that everyone loves to hate, I believe it will become one of the best things ever to hit the wargaming side of the hobby.

I presume you want to know why I would embrace a belief that is nothing short of heresy to so many. I've reached the conclusion that a good deal of our future will be seen through Windows, based on my observations and predictions about the future demographics of computer war and strategy gaming.

New computer owners and users join the digital generation every day. The numbers are increasing steadily and, with them, so are the sales of important barometer products such as computer games and copies of this magazine (the two gauges nearest and dearest to my heart). There are many reasons for this, but the two most important reasons, in my view, are that computers are becoming easier to use (thanks to the Macintosh interface as emulated in Microsoft's Windows software), and they are becoming more affordable. With the ease-of-use and price barriers crumbling, computers will be a very common household device by the end of the century.

It doesn't take a great imagination to see that many of these new computer users will want, at some point, to try out a computer game. If they happen to pick up a war or strategy game, so much the better for our corner of the hobby. The thing that will turn off new computer users fastest, though, is dealing with a lot of configuration hassles in the DOS environment, the obstacles that we veterans have grudgingly learned to hurdle. We can't expect a new gamer to stick around when his first experience with the hobby is a conversation with a publisher's tech support person, typing in DOS commands to fix a problem that is way beyond his current ken. Of all the software I've ever en-

ALTHOUGH WARGAMING IS CURRENTLY ENTRENCHED IN THE FIELDS OF DOS, WINDOWS MAY BE THE WARGAMING O.S. OF THE FUTURE

by Alan Emrich

G-2

*** Let's start this month's news at the TOP. Tigers on the Prowl (TOP) has been upgraded to version 1.14 and a new campaign disk (#1) has been released. Scott Hamilton has also uploaded on CompuServe and GEnie four new maps around the area of Kiev (rendered by Nina Kristiansen in Denmark). Joe Sherfy has also chimed in with a cool Battle of Lutz (Poland '39) scenario on CompuServe.**

*** SSI has done wargamers a good turn. They've released a wargame CD-ROM that includes four of their better entries: Gary Grigsby's Pacific War (version 1.2), War in Russia (v1.1) and his Carrier Strike are the first three. Rounding out the package is our Wargame of the Year, Clash of Steel (v1.1). Although the games' manuals have been crammed together into one mega-booklet, getting all four of these games in one package for around $50 is still a great value.**

*** Speaking of Gary Grigsby's Pacific War, there is a rumor going**

(continued on page 294)

countered, I find that computer games require more dinking in DOS to get them to work properly than any other.

What I hope to see with Windows, whatever its future incarnation might be, are some standards that will increase accessibility for new computer users—the kind who will be the new blood in our hobby and provide the extra income publishers need for new development. This will make a novice's introduction to computer gaming smoother and, consequently, will make them less likely to quit gaming due to technological frustration (not to mention, relieve many a grognard's headache). It's a lot easier to double-click on an icon than remember a directory name and executable file in DOS. In this regard, I believe that we'll greatly increase our convert ratio of new users to regular gamers if enough good games are available in the Windows format.

I believe that this is particularly so for war and strategy games. The Windows environment has taken over the workplace in America. Cerebral games, such as the kinds we enjoy, can penetrate the workplace easier if they are Windows products. Schools and workplaces are where, in my experience, converts to war and strategy games are made. They're seldom won at the retail level competing with action games, vehicle simulators and role-playing games, all of which have more sex appeal in their packaging. No, word-of-mouth is our best recruiting tool, and games in Windows are that much easier to make new converts with.

Another big plus that Windows offers is that it makes programming easier. There are a lot of potential Mom & Pop wargame companies waiting to spring up and do their little bit of business in this well-knit niche community of war and strategy gamers. They've always been there in the board gaming side of the hobby and, if the programming tools are easy enough to use, they will proliferate on the computer gaming side, too. Windows offers plenty of tools and programming "modules," liberates new programmers from the details of memory restrictions and device drivers and, generally, makes life easier for those who opt to program in Windows. Personally, I feel that there will be more "grassroots" products in our future like Defend the Alamo, Victory or Defeat, or Aide de Camp if Windows becomes a hobby standard.

I'm not ready to join in the vitriol-slinging about which operating system is best. They all have their advocates and advantages, and I'm no technical expert, nor a programmer. Like most of you reading this column, I'm a gamer who knows enough about programming to keep my computer games running. However, like it or not, the winds of change are blowing through Windows. For me, I say open Windows wide and let the games shine in!

THE PERSONNEL DEPT.

At ease. I have a brief announcement to make. As those of you whom I frequently encounter on-line already know, I have recently changed hats (helmets?) here at *CGW*. No longer am I *CGW*'s On-line Editor; that job is now being deftly managed by Allen Greenberg. Instead, I am now working for Ziff-Davis Interactive, helping them to launch their new computer network, Interchange. In effect, I'll be Interchange's guy at the *CGW* offices, getting the magazine's content up on-line and helping to build a gaming area that we can all be proud of. I'll still be writing for the magazine, both this column and the occasional review, sneak preview or strategy article—so you'll still have me to kick around.

G2

(continued from page 293)

around that SSI has told Gary to stop making unofficial patches for the game (he was up to version x19). The reason is that a new, "official," upgraded version is in the works and currently undergoing beta testing. We certainly commend both Gary Grigsby for taking upon himself personal responsibility for customer support, and SSI for keeping a game as important as Pacific War upgraded for their customers.

* For those not on the GEnie network, you may have missed Mark Baldwin leaking some information on White Wolf Productions' next release. Apparently, the working title is Empire II and it will be considerably different than Empire Deluxe. While the units will maneuver on a square grid map covered with some new and familiar terrain tiles, just about everything else is user definable: unit values (somewhere between 10 and 20 of them for every unit type, including movement and combat vs. every other unit type in play), terrain effects on combat, game length, map size, victory conditions—you name it. Mark also indicated that their new product would be on an operational scale (i.e., production would not be emphasized, but reinforcements and winning campaigns would be). Finally, he mentioned that there would be an icon editor for creating new unit types. With this kind of configurability, plus the modem and e-mail play support that White Wolf is known for, 1995 is already shaping up to be a good year!

* Other sequels are coming up, too. Among them is Custer's Last Stand (working title) from Incredible Simulations. This group, composed of the Brothers Lapkoff, gave us Defend the Alamo! Readers interested in wearing arrow shirts should call Incredible Simulations at (312) 267-3808.

* Word of Master of Orion Deluxe is in the wind. SimTex Software has been compiling tons of consumer feedback on the update from the on-line networks. Planned features include more alien races (perhaps even a "design your own" feature); separating military from civilian population points so that other races can be subjugated; new ships including space stations, carriers and fighters; real multiplayer capability (in a MicroProse game?!), and more. Let's hope the deal is done and all of these great player suggestions come to fruition.

* X-COM, too, has come down with a case of sequelitis. Two products, one with an underwater setting and the other set on a different planet, are under consideration at MicroProse.

* More details are coming out for Beyond Squad Leader. Atomic Games is programming this Avalon Hill release, and it is important to remember that this will *not* be a computerized version of the mega-hit Advanced Squad Leader board game series! The basic element in Beyond Squad Leader is individual soldiers (as opposed to squads in the board game). These soldiers

(continued on page 296)

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G2 *(continued from page 294)*

operate in 4-5 man teams, and the game allows for effective management of about 20 to 25 of these teams (plus their vehicles) per side.

There will also be two AI modules, one for "strategic" planning and one for executing more tactical matters (the latter simulating the soldier's individual brains!). Players cannot tell their individual soldiers what targets to shoot at, ammo to use, or what mode to fire in—the tactical AI will handle that.

BEYOND SQUAD LEADER, like New World's IRON CROSS, is a real-time game. Thus, players will order their troops where to go and which areas to cover. The soldiers will decide on their own if they will go at double-time or crawl low to the ground, etc. Basically, one assumes the role of a field commander, trying to deal with the chaos when plans go out the window (i.e., after contact with the enemy). Survivors can be advanced to other scenarios to make for campaign style play.

* Alliance won't be producing Big Time Software's FLIGHT COMMANDER. Avalon Hill will be releasing an improved version of the game both for the Macintosh and Windows. Alliance will, however, be releasing HARPOON CLASSIC and COMMAND AT SEA. The latter is Larry Bond's WWII version of HARPOON expected to be released in 1995.

* Crossing over from board wargaming is GMT Games' ALEXANDER THE GREAT. The computerized version is lovingly nicknamed "Alexander the Byte" and it will be released by SSI. Renowned designer of the board game, Mark Herman, will be trying some new AI techniques in the game that he developed while working for the Pentagon (nothing classified, of course!).

Features are expected to include: a campaign game where surviving units and leaders show up at the next battle; a play-by-e-mail feature; extensive on-line help (after all, the rules for the board game already exist!); on-line history by Mark Herman and Richard Berg; unit values that can be edited, and more. Release is hoped for the Summer of '95.

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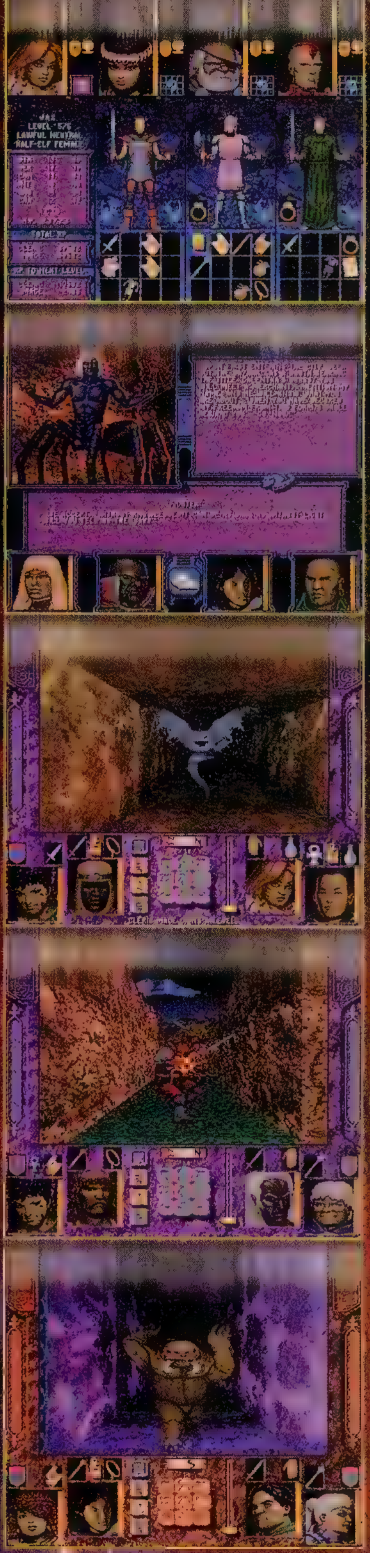

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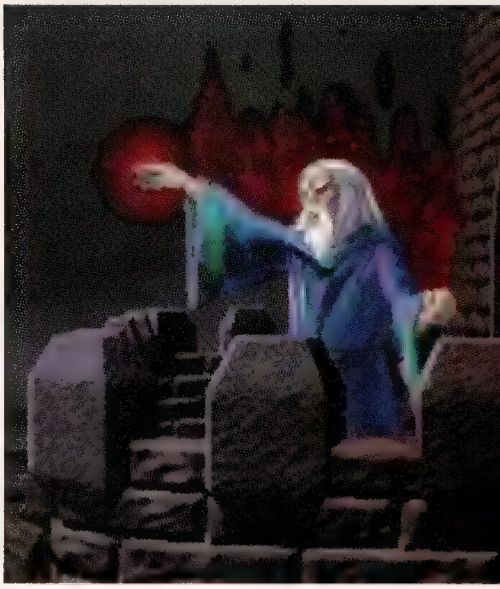
REVIEW

Magical Mystery Tour De Force



SimTex Conjures Another Bewitching Game In Master of Magic

by Robert L. Hayes, Jr.

Shadows waft slowly across the light. Uneasy chords build to loud, strong resolution—a symphony of strength. Spellbooks open and flip pages without the assist of human hand as an arcane scrawl metamorphoses into legible English prose. Tomes of Chaos, Death, Sorcery, Life and Nature magic rest on cold stone shelves. Such are the archetypal images of Master of Magic.

Master of Magic, Steve Barcia's latest work of twisted genius, is an epic game of magic, exploration and conquest in a unique fantasy world. The player takes the role of one of several contending wizards, each attempting to gain complete mastery over the co-planar worlds of Myrror and Arcanus by force of arms and sorcerous power. The computer takes on the role of the other wizards, varying in number from one to four.

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THE SORCERER'S APPEARANCE

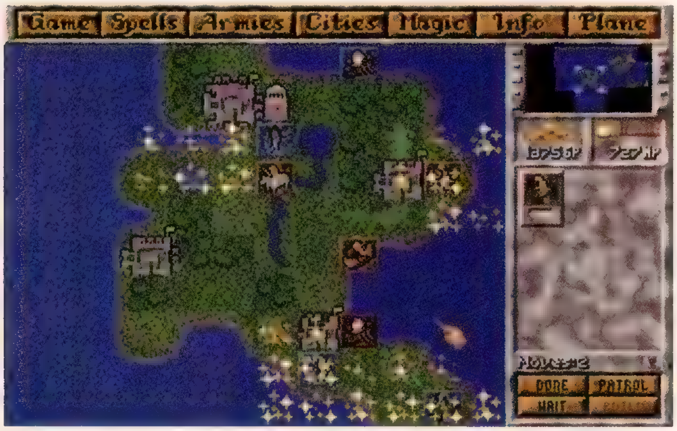
You conjure your wizard by choosing his or her strengths and weaknesses from the five principal schools of magic: life, death, chaos, sorcery and nature. Each wizard has 11 "picks" to distribute among the five schools, and may also use picks to select from among 18 special abilities. For example, a wizard wishing to emphasize druidic magic and peaceful cooperation might choose to place seven picks in nature magic, three picks in life magic, and one pick for the special ability of Charisma. A more warlike mage might put eight picks in chaos spells, one pick in death spells, and use two picks to purchase the Warlord special ability, which raises the effective level of all military units by one. Spell picks do not decide your starting spells, as with few exceptions players all start with the same two or three basic spells. However, multiple picks in a given spell area greatly influence the choices of spells a wizard is able to research throughout the game. A magician with many picks in death magic is much more likely to be able to learn the powerful Summon Demon Lord spell than a sorcerer with only one or two picks.

Having designed the initial wizard, a player must then choose the race that will inhabit his or her starting city. There are 14 races, ranging from traditional fantasy stalwarts such as High Elves, Halflings, and Dwarves, to such outré folk as Beastmen or the Klackons (making a guest appearance from Simtex's previous game, Master of Orion). Each race has advantages and disadvantages, of course. Klackons make wonderful engineers and warriors but are unable to build any of the more advanced religious structures that provide a wizard's primary power base, while Dark Elves are so magic-riddled that their mere existence generates power for their controlling wizard, in spite of the fact that their slow rate of reproduction can prove a curse to the wizard with that expansionist gleam in his eye. Depending on the vagaries of the game, it is possible to capture cities belonging to other races and use the special abilities of that race, complete with appropriate magic (which must be researched). It is even possible to move your center of power to another city and make that city's race the one upon which your empire is based.

Each wizard starts with one city, a few thousand inhabitants, and a few "seed" buildings. The city display will be familiar to players of Sid Meier's Civilization. In fact, we wouldn't want to suggest that the same code was used, but it sure looks like it could have been. From the graphic representation of the buildings themselves to the row of farming, working, and rebelling citizens, the city display is a near verbatim copy of the earlier design.

There are differences, of course; for example, there are no Elvii or Levii (entertainers or tax collectors). The city's current production of food (little loaves of bread), production (pickaxes and anvils), gold (coins), magical power (glowing stars), and research (books) are shown as rows of icons. The city's current production is shown, along with lists of things which can be currently produced. The player's starting city is small, but capable of reasonable production endeavors. A wide (indeed, mind-boggling) array of buildings can be built, depending on the race inhabiting the city. Some buildings (granaries, farmer's markets) increase food production, some (barracks, fighters' guilds) allow new unit types to be constructed, while others (libraries, universities) conduct magical spell research. Religious structures (temples, shrines) produce magical power and pacify the inhabitants, while production centers (sawmills, miner's guilds) increase the city's overall production.

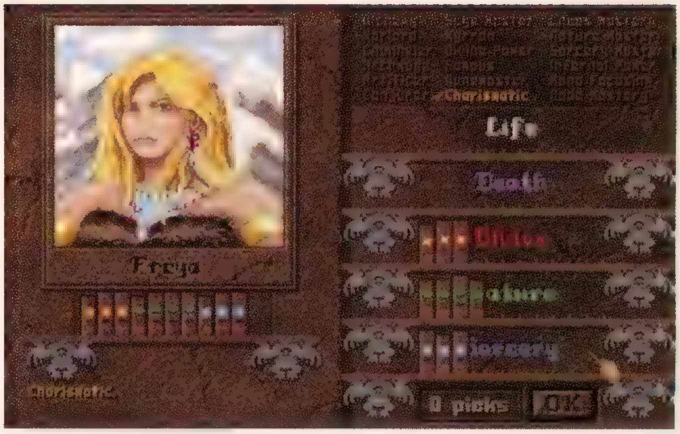
From these humble beginnings, players must vie to expand their holdings, establish (or conquer) new cities, and increase their magical knowledge. The ultimate goal of the game is to banish all other wizards from the twin worlds of Arcanus and Myrror. This can be accomplished in one of two ways. Ideally, the Spell of Mastery can be discovered after long periods of research. More directly, you could simply kill all the other wizards with your invading armies. Either option can be viable, depending on the way an individual game plays out.



DEJA VIEW The similarities to Civilization in the map view, including the strategic map at top right, cannot be denied.

THE SORCERER'S ADHERENTS

The player's initial city and lands are a tiny island five squares in diameter amidst a sea of black. The blackness gradually dissipates as you send exploring units out into the great unknown, or as you learn new magical spells that can reveal great expanses of virgin territory. Again, Civilization veterans will find the map very familiar, down to the impassable arctic regions. Grasslands, forest, and the less productive swamps fill the continents, while mountains, hills, and volcanoes simultaneously cut down on food production but increase the manufacture of buildings and military units. There is a variety of special terrain, which provides for varying bonuses to cities within two squares of them. In particular, gold and silver provide steady incomes to the city (a priceless boon in the early years of a city's growth, since the wealth production is steady and does not vary with a city's population), while varying magical crystals add magical energy (mana) to a wizard's power base. Animals increase food production, while river mouths increase the gold derived from a city's tax base. Roads can be built by the engineers of certain races, and these also increase the tax base.

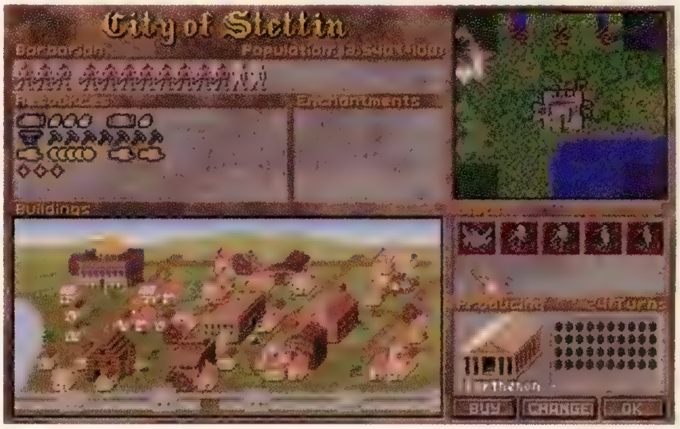


A WARRIOR IS BORN Freya the Ice Sorceress has chosen to specialize in the Nature, Sorcery, and Chaos magics, with a little Charisma on the side.

Having gotten a starting city on the road to productivity, usually accomplished by building a granary to boost population growth or a library to speed research, the aspiring wizard is advised to send her starting military units (generally a unit of swordsmen and a unit of spearmen) off into the great unknown. There they will find ruined temples, monster lairs, dank caves, and mystic towers littering the landscape. Most of these contain fell monsters beyond the power of a beginning wizard, but a few will be accessible to even the weakest of units.

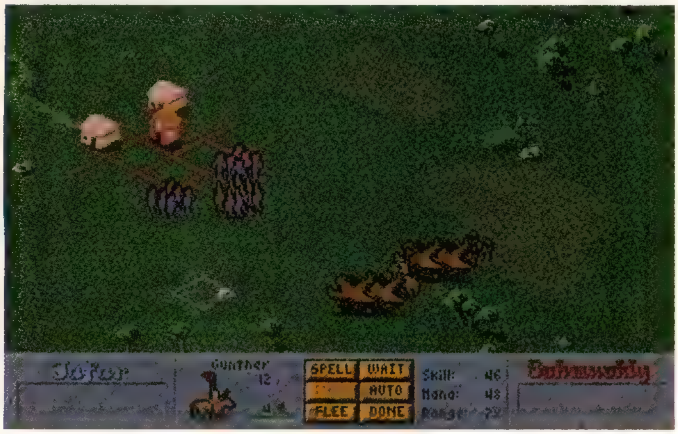
Ruins disappear when conquered, but usually contain gold, magic power, artifacts, or prisoners (heroes and heroines) who will join the player's army out of gratitude at their release. The most useful of all "found" items are the power nodes, which generate tremendous magical energy once bound to the wizard's will by a summoned magical spirit, but these nodes are very difficult to capture, being guarded by the most powerful and evil monsters. Even without the bonus of mana tapping, magical nodes also provide extremely worthwhile treasure—like additional spell picks or retorts (potions) which grant the acquirer new special abilities.

While exploring these ruins, units are likely to encounter monsters weak and strong. The strong must be fled from, at first, but the weak can often be conquered. Upon entering battle, the overhead map view becomes a semi-isometric 3D view of a small terrain area. Each unit is represented by a few figures in a square. The map is some 20 by 20 squares, and each army



DEJA VIEW TOO The city screen looks even more like Civilization, from the row of workers, to the view of the city, to the rows of resource icons.

moves and fights in turn. Combat is magnificently complicated, with such a host of modifiers, special spells, special units, special powers, etc., that even a summary description would fill this review. Suffice it to say that the combat system is an order of magnitude more involved than that used in Master of Orion (MOM's spiritual ancestor), while remaining relatively clear-cut and straightforward.



GANDALF KHAN Combat takes place on a tactical map, reminiscent of the one in Koei's Genghis Khan II, but MOM's battles involve special effects for sorcery as well as swordplay.

THE SORCERER'S EXPERIENCE

While battles rage, each involved wizard may choose to cast spells to help his own forces or hinder his adversaries'. There are 210 total spells that can be learned (a very learned wizard might perhaps know 75 of these), all with varying effects and power levels. Some spells, such as fire bolt, cause direct damage to enemy units. Others, such as holy armor, aid or enhance your troops in some way. Essentially, the life spells aid and enhance your own troops; the death spells weaken your opponents or summon powerful undead beings; the sorcery spells confuse and trick your opponents; the chaos spells blast your opponents directly; and the nature spells (perhaps the most powerful area) cover a wide variety of powers. Some spells can be cast only in combat, while others can be cast at any time. The spells a wizard can cast are limited by her mana (available power) and skill (power usable at any given time). Most importantly, the development of a high skill level is a critical task for most wizards—it doesn't matter if you have all the magic power in the world if you can spend it only in tiny amounts.

There are two worlds to conquer in MOM. Arcanus, the more "mundane" and normal world, is filled with verdant green continents in a sparkling blue ocean. Myrror, accessible only by powerful magic or via magical portals, is an enchanted world of powerful magic. Myrran races (there are several) generate magical power by their mere existence but tend to be slower breeders. A wizard may choose to start on Myrror rather than Arcanus in exchange for a spell pick. Myrran power nodes are twice as powerful as those on Arcanus, and the magical objects (and guardians) of the ruins tend towards greater power as well. Myrror basically provides greater rewards in exchange for greater risk; on Arcanus, one's cities may be threatened by wandering swordsmen, while on Myrror the wanderer is more likely to be a nearly unkillable Demon Lord.

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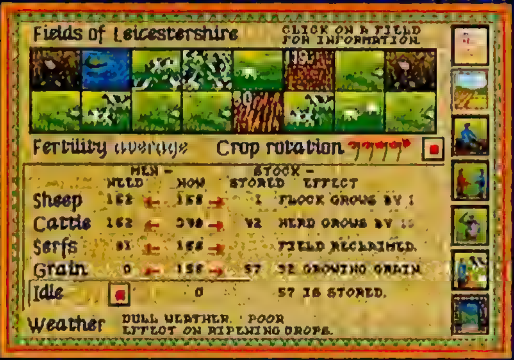
Side
view
North

Summer AD 1281

Do as you like with our mutual foes, but think long ere you try to steal my lands!

The Baron

Click right to exit.


Fields of Leicestershire

CLICK ON A FIELD FOR INFORMATION

Fertility average   Crop rotation

	MEN - NEED	NOW	STOCK - STORED	EFFECT
Sheep	162	158	1	FLOCK GROWS BY 1
Cattle	162	[illegible]	[illegible]	HERD GROWS BY [illegible]
Serfs	81	158		FIELD RECLAIMED.
Grain	0	158	57	32 GROWING GRAIN
Idle		0		57 IS STORED.

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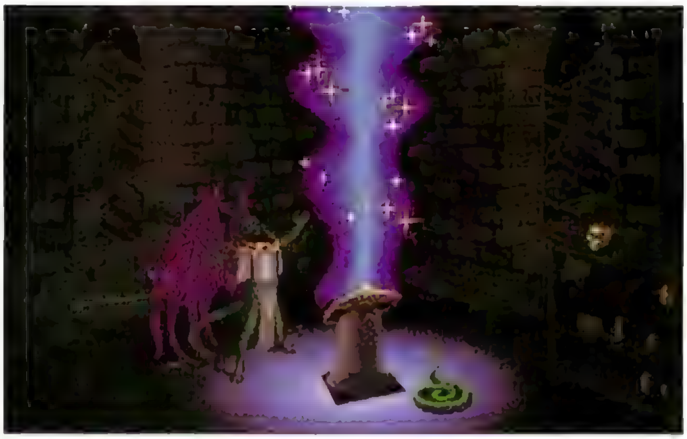
THE SORCERER'S ANTAGONISTS

The computer players are competent opponents for the most part (depending on the game's difficulty level), but as is usual in games of this type (particularly games of this vast complexity and scope) there are amusing holes in the AI. Often, the computer player will bypass an unoccupied city of yours, into which he could simply walk, in favor of continuing to move towards a predefined goal. In combat, the computer conjurer will often cast a helpful spell at their units and then immediately retreat, effectively wasting the spell energy completely. As in MOO, the artificial opponents will hesitate to deal the deathblow to a human player who is obviously losing. They will often bypass ruins, even ruins that have no guardians, allowing a human player to win the treasures and rewards within. That said, they play a decent game, build decent armies, and fight fairly well, which is about all you can ask of a computer game's AI.



WINNING A SPELLING BEE A wise wizard unveils another mystery of the universe upon reaching the successful conclusion of some exhausting spell research.

Diplomacy factors into the game, but a player wishing only to explore, conquer, and research spells can fairly safely ignore the diplomacy. The twin worlds are big places; it takes a long time to get to your enemy's empire once you are both established, and wars tend to fizzle out unless actively prosecuted by the human player. This epic scope may be a weakness of the game; when you have 30 huge cities, each producing massive quantities of troops, gold, and research points, it can become difficult to keep track of who is doing what and why. However, most players will find it enjoyable to wrestle with the administration of a mighty fantasy empire.

THE SORCERER'S INDICTMENT

A large number of bugs have tragically marred the initial release of MOM. MicroProse was apparently mind-controlled enough by the bean counters to force the game from its womb prior to a more natural delivery. The "oops!" factor of this premature birth was immediately apparent: MOM 1.0 is plagued by constant game crashes during the combat portions of the game. (The rule quickly became "save every turn, save before every battle, save every time you can.") Version 1.1, released at the time of this writing, fixed the majority of the crash bugs and greatly enhanced the stability of the game; version 1.2 (expected by the time you read this) should be stable and relatively crash-free.

Without considering the bugs, MOM may well be the best strategy game released this year. It is addictive, incredibly enjoyable, massively detailed yet consistently and intelligently designed, relatively well-balanced, and thus far immune to the "killer strategies" that marred CIVILIZATION and MOO. Despite some significant conceptual borrowing from its ancestors, MOM is fresh and original in every way that counts. I cannot remember the last time a computer game had me up until 5 AM. With MOM, it was just last night.

THE EDITORS SPEAK

MASTER OF MAGIC

RATING ✸✸✸✸

PROS MOM has everything that made CIVILIZATION and MASTER OF ORION great, plus a unique magic and character creation system. Dangerously addictive.

CONS When will they learn? MicroProse released the game a few weeks too soon, leaving crash-bug blemishes on what could have been (and may yet be) a perfect game.

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Impressions

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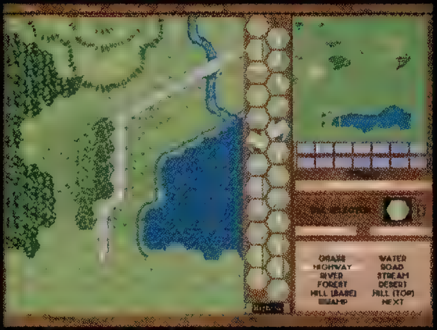
GRASS
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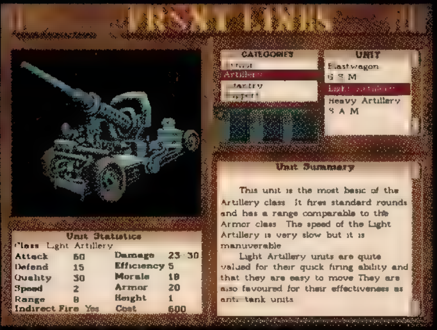
FOREST
DESERT
HILL (BASE)
HILL (TOP)
SWAMP
NEXT

Full scenario editor and builder


FRONT LINES
CATEGORIES
Artillery
Infantry
UNIT
Blastwagon
G S M
Heavy Artillery
S A M

Unit Statistics

Class Light Artillery

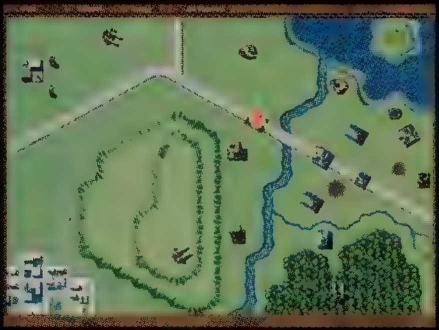
Attack	60	Damage	23 30
Defend	15	Efficiency	5
Quality	30	Morale	10
Speed	2	Armor	20
Range	8	Height	1
Indirect Fire	Yes	Cost	600

Unit Summary

This unit is the most basic of the Artillery class It fires standard rounds and has a range comparable to the Armor class The speed of the Light Artillery is very slow but it is manuverable

Light Artillery units are quite valued for their quick firing ability and that they are easy to move They are also favoured for their effectiveness as anti tank units

Pull up information on any class of units



Combat! Animated units defend HQ

Circle Reader Service #78

Toiling For Lady Liberty

The Road To Freedom Is Paved With Tedium In Sid Meier's Colonization

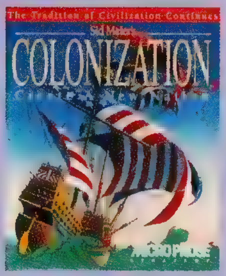
© Archive Photos

by Randall Black

IT SOUNDS LIKE A DREAM, A CROSS BETWEEN TWO UNDISPUTED CLASSICS: SID MEIER'S CIVILIZATION AND SID MEIER'S RAILROAD TYCOON. Set in the era between 1500 and 1800, the object of Sid Meier's Colonization from **MicroProse** is to explore a New World, build a nation from nothing, and successfully declare independence from the mother country.

To players of Civilization, the mechanics of the game will seem familiar. The game begins with a blacked-out screen centered on a single ship loaded with two units: a pioneer and a veteran soldier. By moving west, the ship soon discovers the New World, where, similar to the covered wagons in Civilization, the intrepid colonists can build a settlement and begin to exploit natural resources. Colony placement is crucial—the terrain type and the presence of metal deposits, fisheries, prime farmland or timber stands determine whether a settlement will starve or flourish.

Sid Meier's Colonization



Price: $59.95
System Requirements: IBM compatible 386 or better, 1MB RAM, VGA graphics, mouse recommended. Supports AdLib, Pro Audio Spectrum, Roland, and Sound Blaster sound cards.
Protection: None
Designers: Sid Meier, Brian Reynolds, Jeff Bridges, Douglas Caspian-Kaufman
Publisher: MicroProse
Hunt Valley, MD
(800) 879-PLAY

Similar to Railroad Tycoon, making money involves moving raw materials and finished goods from one place to another. But first, you must feed your colonists, who eat two units of food apiece every turn. There are two sources of food—corn and fish—and each must be grown or caught by a colonist assigned to an appropriate square of the colony's surrounding land. The next priority, producing goods that can be shipped back to Europe and sold, requires having sufficient surplus food to support colonists who grow cash crops, mine silver or process raw materials into higher priced goods. Furs, sugar, cotton and tobacco and other raw materials can be shipped unprocessed back to Europe. However, by assigning a colonist to occupy an appropriate building in the colony, you can designate him as a fur trader, distiller, weaver or tobacconist. These workers will add value to raw materials by producing fur coats, rum, cloth and cigars. Upon arrival in Europe, your ships deliver these homespun goods and pick up purchases such as tools, muskets, trade goods and horses. Big-ticket items—galleons, privateers, frigates or artillery—can take years of scrimping and saving.

GIVE ME YOUR TIRED, YOUR POOR, YOUR TRAINED EXPERTS

When Colonization begins, you are asked which European power—Britain, Spain, Holland or France—you wish to represent in the New World. Each country offers its would-be colonials a specific advantage in the New World. The British colonists, for example, have an edge in immigration due to the turbulent religious climate at home, while the Dutch have advantages in trade and begin the game with more and better ships. The advantage of attracting more immigrants turns out to be crucial because, although a new colonist appears when a colony stockpiles (and sacrifices) 200 food markers, the main source of new recruits are volunteers who appear on the European docks. These tempest-tossed souls yearn to breathe free of religious persecution and will increase in number as your churches generate "crosses" (an abstract representation of religious tolerance). Immigrants include low-quality colonists, indentured servants and petty criminals, the latter virtually useless because they produce so little work. Although they can be upgraded to regular colonist status through education or success in battle, often the best use for this refuse of Europe's teeming shore is as missionaries or soldiers. The most desirable European recruits are experts—master tobacconists, cotton planters and weavers, for example—whose expertise doubles their productivity in their chosen trade.

INDIAN SUMMARY

Exploring the blacked-out map soon reveals that Native American treasures await the adventurous. In fact, exhaustively exploring the New World becomes

BREAKING AWAY FROM THE FLEET

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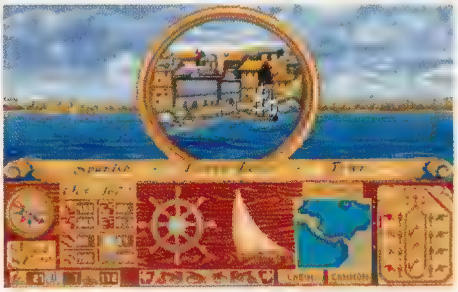
Then let our unique **first-person** perspective and stunning **3-D** graphics put the wind in your sails! **Swashbuckle** away as you **trade** goods, vanquish **enemy ships** and create routes to **riches**. Take time to gossip in local **taverns**, repair **cannonball** damage, and stoke up your **crew's** morale. (A little rum, perhaps?)

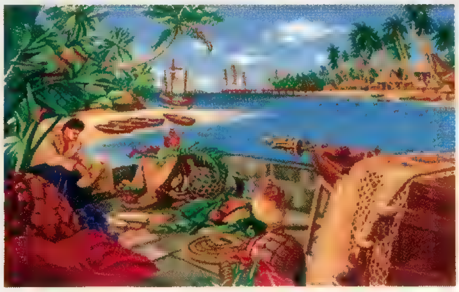
Chart your progress with our authentic **navigational** aids, and revel in a world long gone: Where **fortunes** are fiercely defended, and only **skill** stands between you and the deep blue sea!

Features:

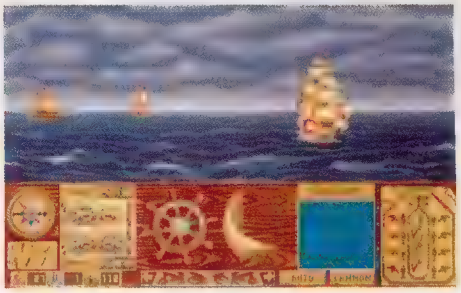
- Variety of goods to trade and passengers to carry.
- Command a crew of soldiers, sailors and apprentices.
- Defend against pirates and enemy men-o'-war.
- Buy and enhance ships from several models.
- Highly intuitive interface.
- Dynamic pricing and political models.
- Strong replayability.



Travel the world in search of riches



Visit exotic ports on many continents



Engage enemy ships in realistic sea combat

Impressions

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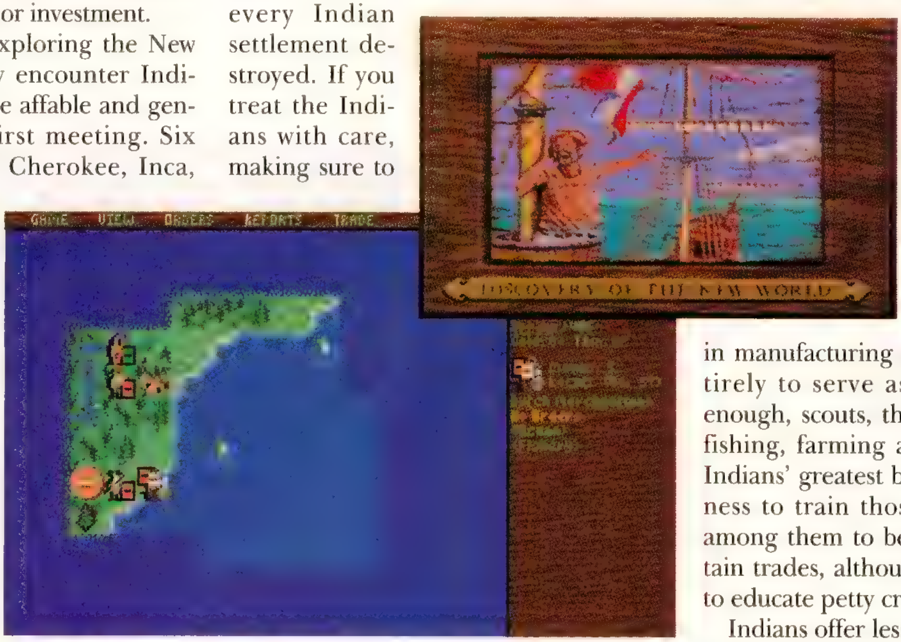
IBM PC Screenshots may vary

Circle Reader Service #7

imperative, because some of the treasures are huge, equal to many years of hard work. However, once discovered, the bonanza "treasure train" can only be transported back to Europe with a galleon, which constitutes a major investment.

In the process of exploring the New World, you inevitably encounter Indians, who in general are affable and generous during your first meeting. Six different tribes—the Cherokee, Inca, Iroquois, Sioux, Apache and Tupi—each have slightly different characters, but all get upset if you appropriate their land without paying for it, disrupt burial grounds looking for treasure, or move armed troops through their land. Once they are angered sufficiently, Indians will attack your colonies or hapless units caught out in the open.

The natural reaction may be to attack and destroy Indian villages and cities, which can yield significant hidden treasure. However, you will be penalized five points on your COLONIZATION score for every Indian settlement destroyed. If you treat the Indians with care, making sure to buy land before using it, periodically trading goods or offering gifts, it's fairly simple to stay on their good side and even benefit from the Indians' generosity, trade and willingness to attack your real enemies: other Europeans. A most useful behavior among Indians is their occasional tendency to convert to Christianity and join one of your colonies. Although they perform less than spectacularly in manufacturing trades and refuse entirely to serve as soldiers or, oddly enough, scouts, they work admirably at fishing, farming and mining ore. The Indians' greatest benefit is their willingness to train those colonists who live among them to become experts in certain trades, although the Indians refuse to educate petty criminals.



COLONISTS & CONQUISTADORS Almost immediately after making landfall in the New World, you'll want to introduce yourself to the neighbors while your colonists scout out a sweet piece of real estate.

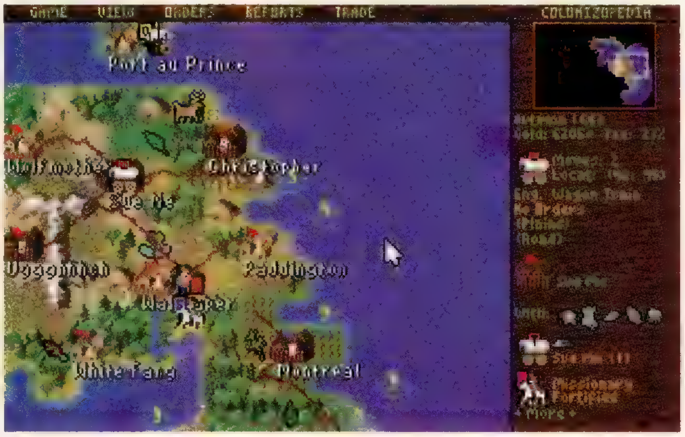
Indians offer less of a threat than your fellow Europeans, with whom you may go to war over land, piracy or simply at the whim of your King. Combat is a relatively bloodless affair in which soldiers

Our casino game is so realistic you'd expect an Elvis impersonator to walk into your room.

and mounted cavalry are demoted after losing. When a dragoon loses a battle, its horses disappear and it becomes a soldier unit. When soldiers lose, their muskets disappear and they become colonists. Finally, when unarmed colonists lose an attack, they switch sides and can be put to work or rearmed to fight another day. Although any colonist can be converted into a military unit, veteran soldiers make the best fighters. The most powerful land units are artillery, which must be purchased from Europe or painstakingly constructed in the New World.

IF I HAD A HAMMER

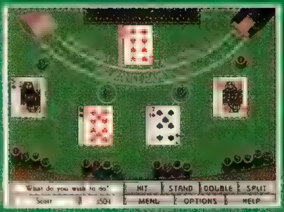
When a colony first forms, it is equipped with rudimentary structures necessary to eke out an existence in the New World. Colonists fell trees for lumber and labor as carpenters to improve the colony with additional buildings, such as more productive shops and factories, warehouses and stockades, churches to attract immigrants, docks to allow fishing, and schools to educate experts. The assigned project is completed once carpenters produce a sufficient number of "hammers." Certain construction jobs also require a requisite number of tools, which may be purchased in Europe or converted from ore by colonial blacksmiths. Tools also allow colonists to become "pioneers" who build roads, clear forests and plow fields much like covered wagons in CIVILIZATION.



SIBLING RIVALRIES The English thrive in their newfound land, but so do the French. In such close quarters, war between European powers is likely unless skillful diplomacy is used.

Roughly analogous to CIVILIZA-TION's Wonders of the World are "Founding Fathers" that join the Continental Congress and bestow special powers on your colonies. Trade advisor Peter Stuyvesant, for example, allows construction of the Custom House which automatically carries away goods for trade, obviating the need for shipping and allowing your colonists to circumvent embargoes. Religious advisor William Brewster ensures that indentured servants and criminals no longer appear on Europe's docks to emigrate to the New World, and George Washington upgrades every non-veteran soldier who wins a battle to veteran status.

Goods of all variety may be transported in wagons that may be assigned to "trade routes" *ala* RAILROAD TYCOON. Wagons are the only way inland colonies can get their produce to the coast for shipment to Europe. Privateers and frigates prey on trade vessels, a rich source of booty. But contemplating your naval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Q.Q.P.'s
Strategies of the Month

By:Steve Cohen

The Grandest Fleet

The random maps pose an interesting challenge to many players. There may be instances when the computer seems to get the upper hand as far as starting position. Don't let this discourage you. We have found that some of the best battles have been under these circumstances.

Remember the economics of the game. The use of the Opera and Downtown become very important in the close games. It gives you that vital edge that you may need. It may pay to bomb cities with that one really good shot, if it means destroying you enemy's economic assets. To do this you must get something with some punch through the enemy lines. Bombers can help pulverize the enemy front lines. Getting the battleship through can be absolutely devastating. Using other ships as the cannon fodder, you can get an un-damaged battleship close enough to bomb a city.

Try the campaigns, they are a great way to play The Grandest Fleet. Your methods will have to change to protect your ships while escorting them quickly to the exit area. We have had tons of fun with these campaigns.

The Pure Wargame

To truly be an effective leader, use all the aspects of war. Utilize the air strikes and artillery whenever possible. If you are confronted with a particularly powerful unit, hit it from the air, then arty, then you are ready to attack with your ground units. Mechanized infantry seem to do the best damage when attacking infantry, or tanks. When you attack from the ground, hit from all sides, and don't give up until the unit has been destroyed. This will help to insure the victory of your side.

Look at the statistics of the opponent before attacking. Judge your strength, morale, and fatigue against his before attacking. This may prove to change the tide. Another quick hint; use the W key to see what type of unit you are attacking and how hard he will be to destroy.

"Quoting the Quotes"

The Grandest Fleet

"This is what great gaming is all about."

M. Evan Brooks, Computer Gaming World

"The Grandest Fleet is a fascinating little world of its own, and one definitely worth exploring."

Dennis Lynch, Chicago Tribune

Bridge Olympiad

"QQP's reputation for producing top-notch strategy games gets another boost with Bridge Olympiad - another winner"

Joe Novicki, PC Gamer

"Great Graphics, and smooth interface makes for quick play against strong opponents."

PC Gamer

Quantum Quality Productions
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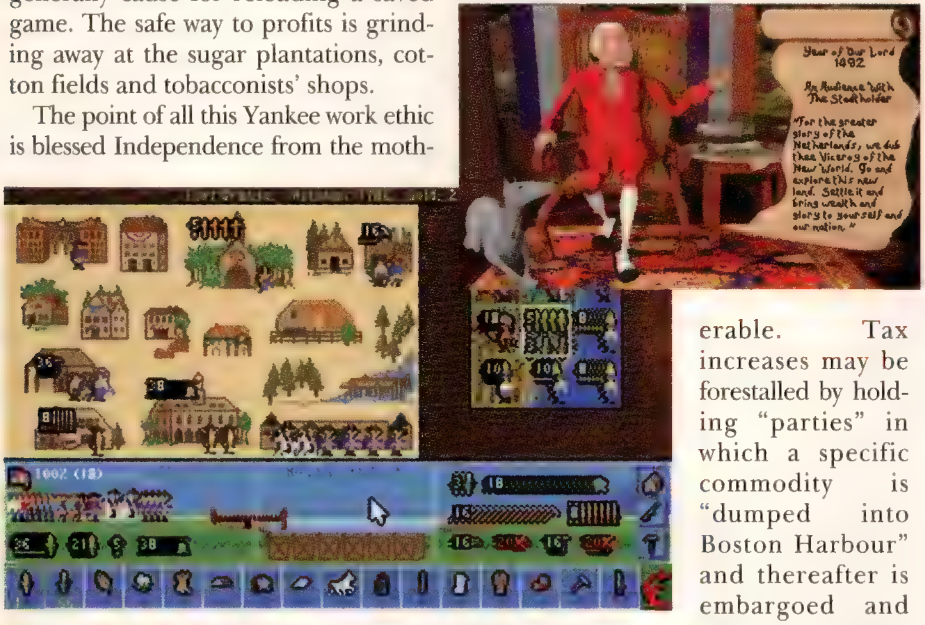
superiority and buying or building a fleet sufficient to carry it off are two different things, as ships are very, very expensive. Watching a 5,000 gold piece frigate get sunk by a lucky privateer is generally cause for reloading a saved game. The safe way to profits is grinding away at the sugar plantations, cotton fields and tobacconists' shops.

The point of all this Yankee work ethic is blessed Independence from the mother country. Depending on the difficulty level, your King will gradually or rapidly increase taxes, taking out a percentage of every transaction and, over time, imposing a financial burden that becomes intolerable. Tax increases may be forestalled by holding "parties" in which a specific commodity is "dumped into Boston Harbour" and thereafter is embargoed and cannot be traded in Europe. You are allowed to declare Independence and begin the long-awaited war of revolution only when 50 percent or more of your colonists have joined the Sons of Liberty. Just as preachers produce crosses, statesmen increase the number of "Liberty Bells," aided in their efforts by the presence of any printing presses or newspapers that carpenters have constructed. The thirst for freedom also increases productivity, adding one extra unit produced per colonist when a colony exceeds 50 percent Sons of Liberty membership, and yet another when membership reaches 100 percent. Once Independence has been declared, the expeditionary forces of the mother country invade. When these have been subdued, aided by the intervention of another European power if sufficient Liberty Bells are produced, the game ends.



Year of Our Lord 1492

An Audience With The Stadtholder

"For the greater glory of the Netherlands, we dub thee Viceroy of the New World. Go and explore this new land. Settle it and bring wealth and glory to yourself and our nation."

SMELLS LIKE REBEL SPIRIT With an embarrassment of natural riches, a Rebel sentiment rating of 100%, and a stockpile of men and troops, it seems this city is ready for revolt.

SAY IT AIN'T SO, SID

On paper, COLONIZATION sounds like a terrific game and, in the beginning especially, is engrossing and addictive. Some of the music is stirring and, if you have a patriotic bone in your body, the game's theme will strike a resonant chord. But the mechanics and design of the game are seriously flawed. Summed up in a

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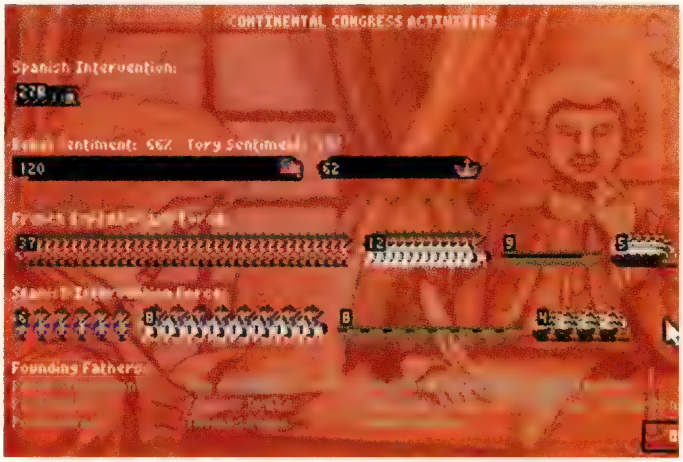
Circle Reader Service #51

word, Colonization is micro-management. The seemingly glacial movement of units, the need to make work assignments for each and every colonist and the unrelenting demand to manufacture and transport goods, conspire to turn Colonization into a tedious chore. A deep flaw lies in overlaying a construction-intensive sandbox game with an incredibly costly combat strategy game. An artillery piece, for example, requires 192 hammers and 40 tools to build. A master carpenter, working in a previously constructed lumber mill, supplied with raw material by a dedicated lumberjack, supported nutritionally by a farmer or fisherman and sustained ideologically by a dedicated statesman, may turn out only 12 hammers per turn. That's 16 carpenter-years to build a unit that may be destroyed by two lucky attacks. The uneasy fusion of the unrelenting toil of colony building and the swift and random destruction of tactical combat becomes apparent when, in the midst of pitched battle, the player is forced to continue micro-managing freight transport.


CONTINENTAL CONGRESS ACTIVITIES
Spanish Intervention:
Rebel Sentiment: 66% Tory Sentiment:
120
62
37
12
9
5
8
8
4
Founding Fathers:

THE REBELLION AT A GLANCE The Continental Congress screen shows the level of Rebel sentiment in the colony, the size of the Royal Army, and the size of the Spanish force that may intervene if enough "Liberty Bells" ring.

At times, game elements seem to have been introduced merely to irritate. Happy and otherwise cooperative Indians block roads for no apparent reason, disrupting important trade routes. Failed attempts to trade are punished by taking away all of a wagon's remaining movement. Roads must be built around cities, because when a transport unit enters a city, all remaining movement points are sacrificed and the screen whisks away to center on the next active unit. Forgetting to go back and unload wagons and ships when their movement stops in a colony means that sometimes crucial materials lie idle for a turn. The proximity of pieces has no influence on order of movement, so that one's train of thought about a local battle may be derailed to focus attention on a distant scout. Merely examining the identity of a unit stationed outside a colony removes its movement for the next turn. In a game dependent on Yankee thrift, maximizing efficiency, and making the most of every scrap, such gratuitous waste would have Ben Franklin rolling in his grave. Had the real original 13 colonies been as inefficient, today we might be speaking English and paying exorbitant taxes. Well, bad example, but you know what I mean.

The thoughtful design and testing inherent in previous Sid Meier masterpieces is plainly lacking in Colonization. Little errors tell a tale of poor workmanship, like a hat feather that blocks the net profit readout at Europe's docks or signs that are made unreadable by the hands that hold them. At higher levels of difficulty, the game introduces challenge through the simple expedient of amplified tedium. The game's ultimate goal, to arm to the teeth and weather out the War of Independence, is unsatisfying and anticlimactic.

In the final analysis, Colonization is an initially engrossing game that can become a chore. Although it has nice historic touches that might yank the bell cord of patriotism in American gamers, it lacks the design elegance, play balance, and long-term addictiveness of Sid Meier's previous games. ◆

THE EDITORS SPEAK

SID MEIER'S COLONIZATION

RATING ✸✸✸ 1/2

PROS At times, as addicting as other Meier games. Nice historical touches will stir the blood of the patriot.

CONS While we liked the game more than Randall, we agree that there is more tedium and less care in this game than in other Sid Meier releases. Not up to the level of Civilization.

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Circle Reader Service #295

Big Wars, Little Men

Fight The Campaigns Of The Ancients In Mindscape's Legions

by Johnny L. Wilson

It is too bad that H.G. Wells couldn't have lived to play Legions. The science fiction author and social visionary who is often credited with formalizing rules for games with lead soldiers (miniatures) in his book *Little Wars*, would probably have loved it. It will certainly be too bad if Phil Barker and Donald Featherstone, two other stalwarts in the development of rules for miniatures, are not given complimentary copies of Legions, the new Ancients-era wargame from **Mindscape** (formerly **Software Toolworks**). Legions is, essentially, a full-blown miniatures campaign brought to the computer in both Macintosh and Windows formats. Indeed, with a little effort in the present and a programming change in the future, Legions could serve as the referee for a live, miniatures campaign game, using any set of rules for ancient warfare.

SNEAK PREVIEW
Game Still In
Development

Legions is a multi-player game (same-computer or network) which allows you to test your strategic skill and leadership over 21 basic campaign set-ups. There is one completely random campaign (in both terrain and country mix) and your choice of random or historical set-ups for many eras, including: Iron Age Near East (an easy campaign for aficionados of biblical history), Ancient China (a campaign of moderate difficulty covering the era from the Wei through the Han Dynasty), the Peloponnesian Wars (featuring moderate difficulty, but having the confederations of city-states break down more quickly than would normally be expected), Alexander the Great (a challenging campaign following Phillip II's death), Foundation of Rome (a fairly easy campaign featuring Cincinnatus vs. the Aequians), Caesar's Gallic War (as a whole, a tough scenario because Caesar has no successor and his death equals automatic defeat for the Romans), Break-Up of Rome (a moderate campaign featuring the Emperor Diocletian versus Huns, Ostrogoths and Visigoths), Byzantine Wars (a fairly simple campaign set in the Near East following Mohammed's death), Charlemagne's Rise (a moderately difficult campaign that is neither Holy, Roman, nor an Empire), and African Power Struggle (a simple campaign covering religiously inspired wars set in the late First Millennium).

THIS IS NOT YOUR EMPEROR'S "LITTLE WAR"

Legions is not to be confused with the miniatures battles themselves. The game is more concerned with maneuvering leaders and units into battle via an easy point-and-click movement system than with actually fighting those battles out tactically. For those who simply don't want to be bothered with fighting big battles, Legions provides a suitable mechanism for resolving those battles. However, your options for individual battles are limited to choosing one of seven basic stances prior to the battle (Withdraw, Outflank, Refuse Left, Refuse Right, Assault, Echelon and Defend) and letting the computer resolve matters from there. There is no need to worry about whether you are using the phalanx or legion formations, and you need not take the time to meticulously place your slingers or archers as your *auxilia*. This is not the kind of game in which you can argue over the relative uses of peltast units or flaming pigs (they are in the unit mix, but they don't seem as important as they do in tactical battles). You simply make one decision and the computer does the rest.

Of course, in the version we tested, those playing against human opponents can have another option. If both choose the Withdraw option, they can resolve the tactical battle with real miniatures on the tabletop. Then, any units that have been lost in the tabletop battle must be eliminated on the computer by clicking on said units and using the Disband command. It isn't elegant, but it works. An enhanced CD-ROM version of the game is in the works which should

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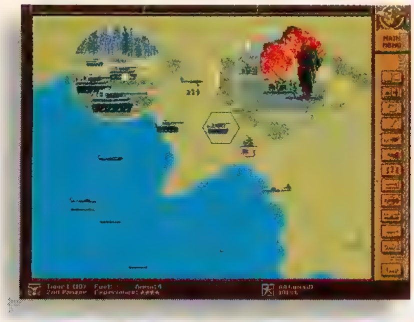

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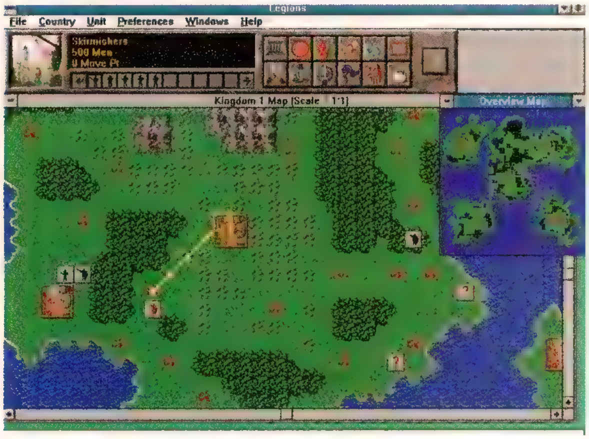
incorporate a miniatures results editor.

Since the program generates random terrain for every campaign, knowing the geographical shape of the game world can be crucial. One advantage of having the game running under Windows is that it can take advantage of the printer drivers and print maps of the entire game world and the active map window. This is a nice feature that I'd like to see in more games. Also, gamers who prefer having moves clearly mapped out can opt for a map with a grid overlay or without.

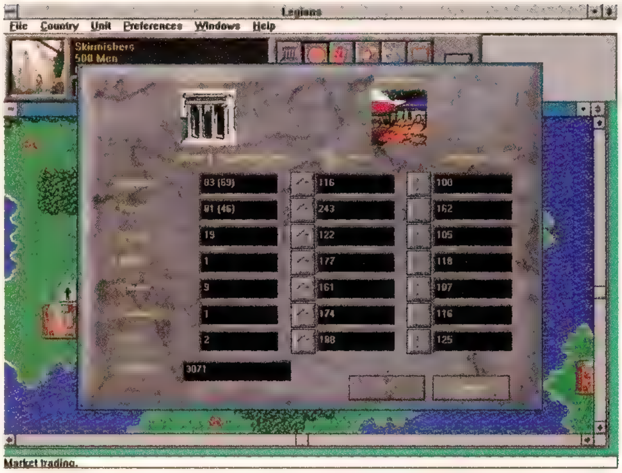
ECONOMY SIZED MILITARY

As in any well-conceived campaign game, LEGIONS has a significant economic emphasis. In LEGIONS, the computer handles the rules concerning the economy, applies those rules to determine the types of units you may build, referees the movement for all players, and resolves the battles. Rather than simply offering build points as in most miniatures rules, the program has algorithms to consider the number of towns, cities and capitals held versus the amount of food, wood, metal, textiles and technologically advanced items that can be produced. To build a unit, you must have the right mixture of these items (e.g. Heavy Transports require 20 wood, 10 textiles and 25 technology). Although it is commonplace in wargames to base troop build-ups on economic performance, the LEGIONS design shows a direct correlation between the military and the economy in a very elegant fashion.


Legions
File Country Unit Preferences Windows Help
Skirmishers
500 Men
0 Move Pt
Kingdom 1 Map (Scale 1:1)
Overview Map

CLICKING A FIGHT By pointing at a unit, clicking and dragging, the AI figures the optimal path to the target square. As in most wargames, adjacency initiates combat.

What isn't so elegant in the early version of the economy is the way it calculates production and market value. Mindscape was testing two economic models as I prepared this sneak preview, one running under Windows (the version I played) and the other on the Macintosh. The Mac game used an algorithm that presupposed a limited amount of buyers/sellers at the marketplace. It made the logical assumption that you could only sell so much of a given commodity in the marketplace from month-to-month. So, you had to monitor your stockpiles of commodities every month. Frankly, I prefer the Mac style because it is more realistic.



83 (69)	116	100
81 (46)	243	162
19	122	105
1	177	118
9	161	107
1	174	116
2	198	125
3071		

Market trading.

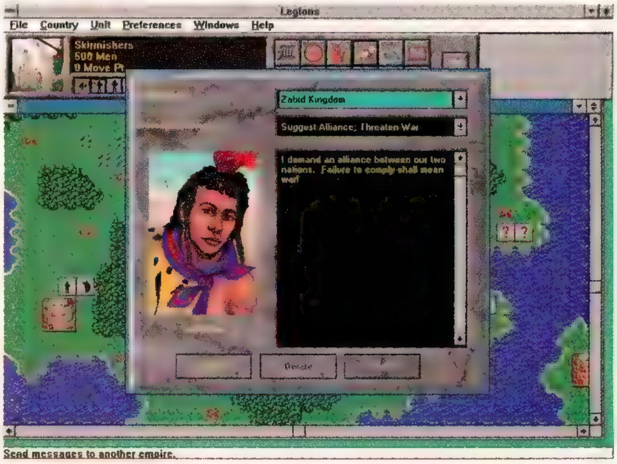
IF YOU WANT TO DANCE, YOU HAVE TO PAY THE BAND It takes money to make armies and LEGIONS gives you a diverse economy with which to work.

The Windows version lets you get on with the game, since you don't have to worry much about your stockpiles of goods; you can sell any unwanted commodities or goods in any quantity at any given point in the game in order to purchase any commodities or goods to facilitate production at any point in the game. This is a far cry from realism and suffers in comparison to such interesting treatments as the wandering merchant in **Impressions**' LORDS OF THE REALM or the classic **Koei** games like GENGHIS KHAN and ROMANCE OF THE THREE KINGDOMS. Worse, the Windows approach belies the monthly message from your economic advisor telling you that the military is bankrupting your economy. At press time, Mindscape hadn't decided which model to choose.

IT'S NOT A LIE, IT'S DIPLOMACY

Players of **Avalon Hill**'s DIPLOMACY or MACHIAVELI boardgames should feel right at home with LEGIONS' diplomatic system. With multiple enemies, you can well imagine that diplomacy is a vital aspect of the game. In some games, you have to worry about fighting a two-front war. In LEGIONS, you have to worry about the possibility of fighting a three- or four-front war.

To avoid that mess, you have a long menu of diplomatic options. You can suggest an alliance normally or suggest one menacingly with the possibility of war behind it. You can suggest an economic alliance in order to ease into a more formal alliance. You can suggest neutrality in order to stall while you take care of more important matters. Finally, you can suspend diplomatic relations by declaring diplomatic war, create a boycott by declaring economic war, or declare formal war. If that doesn't work, there is a Give command that will enable you to bribe enemy leaders.



Zabid Kingdom

Suggest Alliance; Threaten War

I demand an alliance between our two nations. Failure to comply shall mean war!

Send messages to another empire.

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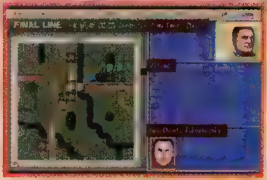
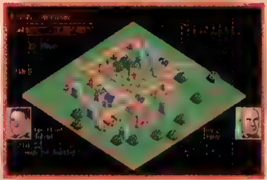


AS COMMANDER, POSITION YOUR REGIMENTS FOR VICTORY!



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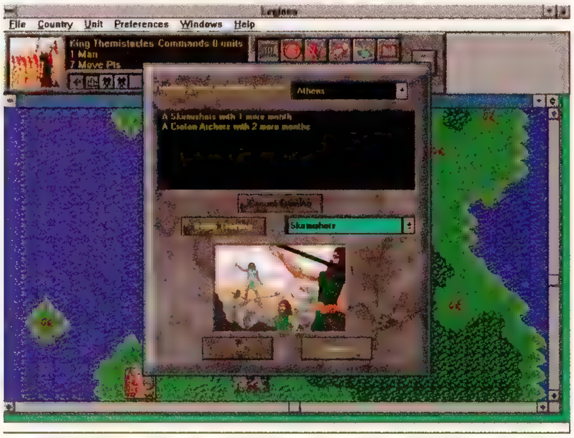
Circle Reader Service #319

Ideally, the most interesting campaigns will be fought between networked or hot-seating human players. However, many gamers will play solitaire against computer opponents and need to know the truth: the artificial opponents are extremely capricious. They are fickle by design. Alliances were extremely volatile in the ancient world and Mindscape wanted that to be part of the mix. In LEGIONS, however, there is a disconcerting tendency for the opposition to declare war on you in one month and want an economic alliance in the next. Frankly, though, their short diplomatic memories usually work to the human player's advantage, since you can simply keep bombarding them with diplomatic messages to try to change the situation whenever it doesn't please you.



King Themistocles Commands 8 units
1 Man
7 Move Pts

A Skirmishers with 1 more month
A Cretan Archers with 2 more months

THIS WILL MAKE YOU SKIRMISH Unit construction (called training) takes place in any capital city, dependent upon the empire having the essential commodities to outfit the unit.

REMEMBER PERICLES

The combat algorithms are not set in stone at press time, but the early version has provided me with great success whenever I have remembered the strategy of Pericles, Athens' most famous leader. Pericles did not believe in the decisive battle theory. Rather, he focused upon a war of attrition, wearing down the enemy one objective at a time. The Periclean Strategy works extremely well in LEGIONS. I was very successful when I concentrated on taking one city or town after another away from one particular enemy, while doing whatever it took to neutralize other opponents (diplomatic snow flurries, gifts, troop movements on their periphery, etc.). Every town you take away from the evil empires who oppose you weakens them and makes you strong.

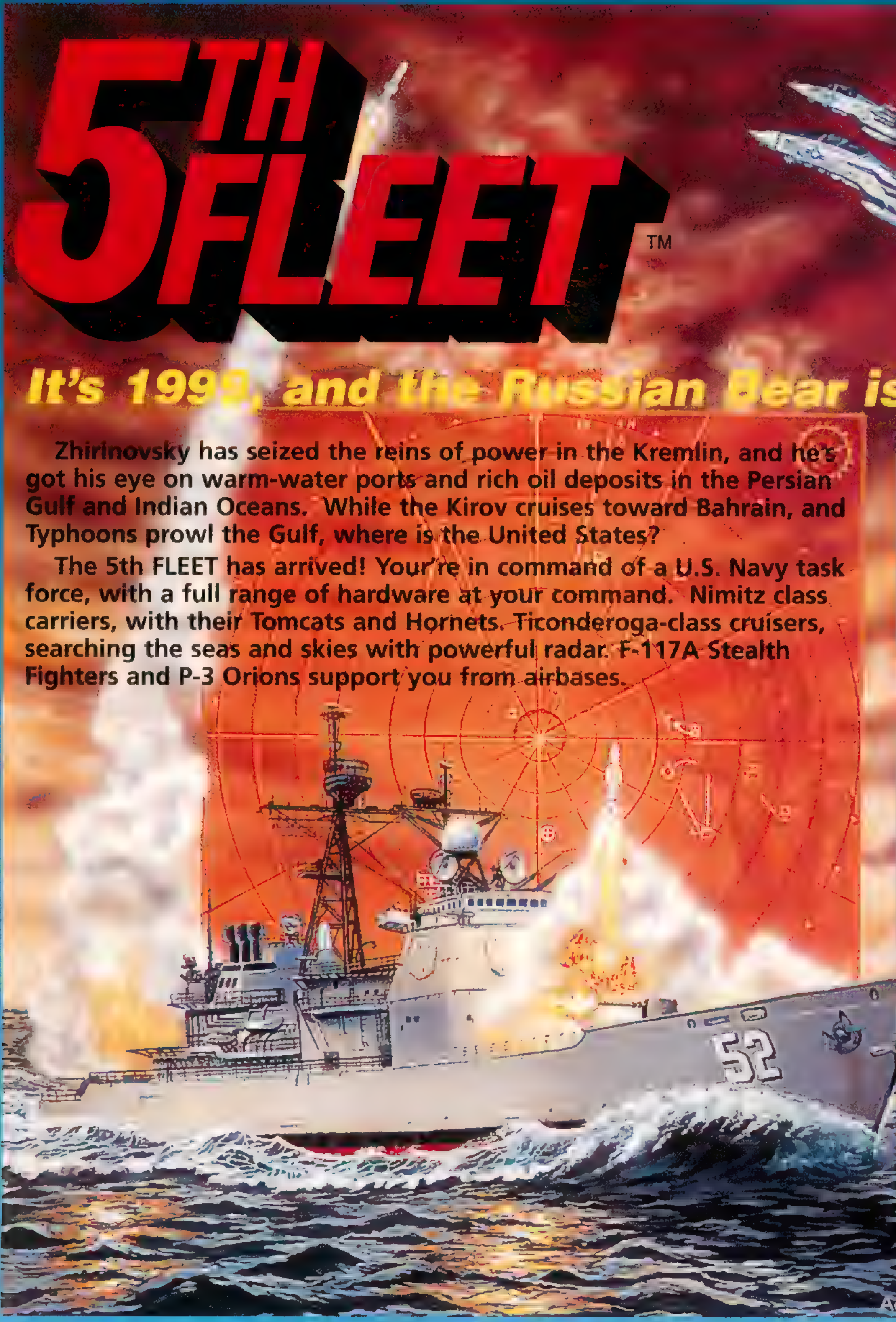
Further, the game allows you to pick your enemies intelligently. You can pull down information about enemy empires, and a colorful pop-up window will inform you as to whether their military is larger or smaller than or about the same size as your own. If you are using the Periclean Strategy, you don't want to start out against the largest empire.

You shouldn't be afraid to withdraw. Some artificial opponents will mass their troops under their strongest leader, and you don't want to face them head-on. Rather, you should go in the opposite direction and reduce the cities that they have left ungarrisoned or lightly defended. Eventually, the enemy will have to disband some of those massed troops because his economic base has dwindled.

Movement is the key against the artificial opponents, since humans are more flexible and able to change plans on the fly. Indeed, I found cavalry units operating under their own initiative to be of considerably more value in most scenarios than those large forces of massed troops. You need one formidable group, as a rule, but the cavalry can keep your enemies off balance.

CHARIOTS OF THE COGS

LEGIONS looks like it could be a boon to miniaturists and computer wargamers alike. The network option and ability to resolve entire campaigns very quickly is conducive to lunch hour and after-work competition. The referee function (to be designed into a future version of the game) will make every Wargames Research Group player want a copy, and may cause some of the rest of us to start painting our ancient lead armies. The combat and diplomatic algorithms need some tightening in order for LEGIONS to become a solid solitaire game and we would like to see a more robust economic model. Nonetheless, LEGIONS is one of those games I've wanted to see for a long time, because of approach as well as subject matter.



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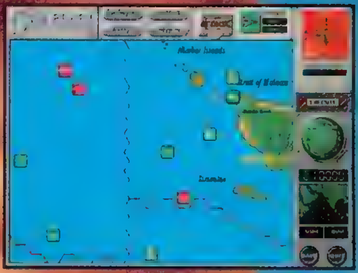
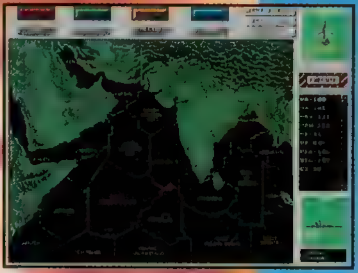
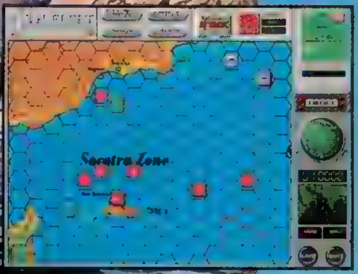


Proper use of air cover is essential to victory



Satellite's-eye view



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Circle Reader Service #44

Tac(tical) Op(eration)s

Arsenal Engages The Future Of Tactical Combat

by Bob Proctor

Photo by Hans Halberstadt © Arms Communications

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TacOps

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System Requirements: MacPlus or better, 2MB RAM for monocrome, 4MB RAM for color on System 6 and System 7; IBM version forthcoming, Spring '95.
Protection: None
# of Players: 1-2 (network, e-mail, modem)
Designer: Major Ian Holdridge
Publisher: Arsenal Publishing Inc.
Sterling, VA
(800) 247-1877

The first sentence in the manual states: "TacOps is a simulation of contemporary and near-future tactical ground combat between United States (US) forces and various opposing forces (OPFOR)." I can't put it any more succinctly than that. The main thrust of the game is to test the effect of new weapons systems on tactical doctrine. For example, will Unmanned Aerial Vehicles (UAV) extend the effective reach of indirect artillery fire? How much will this help the defense?

Your point of view is that of the battalion or regimental commander. The lowest unit depicted is the squad, and it either exists or it doesn't: there is no accounting for individual men. As such, you are more concerned with the overall mission objectives than how Company K can win that firefight in the woods. TacOps includes 26 scenarios, many of which have a number of variants adding extra forces or weapons. If that's not enough, it's very easy to customize any of these by adding or deleting units.

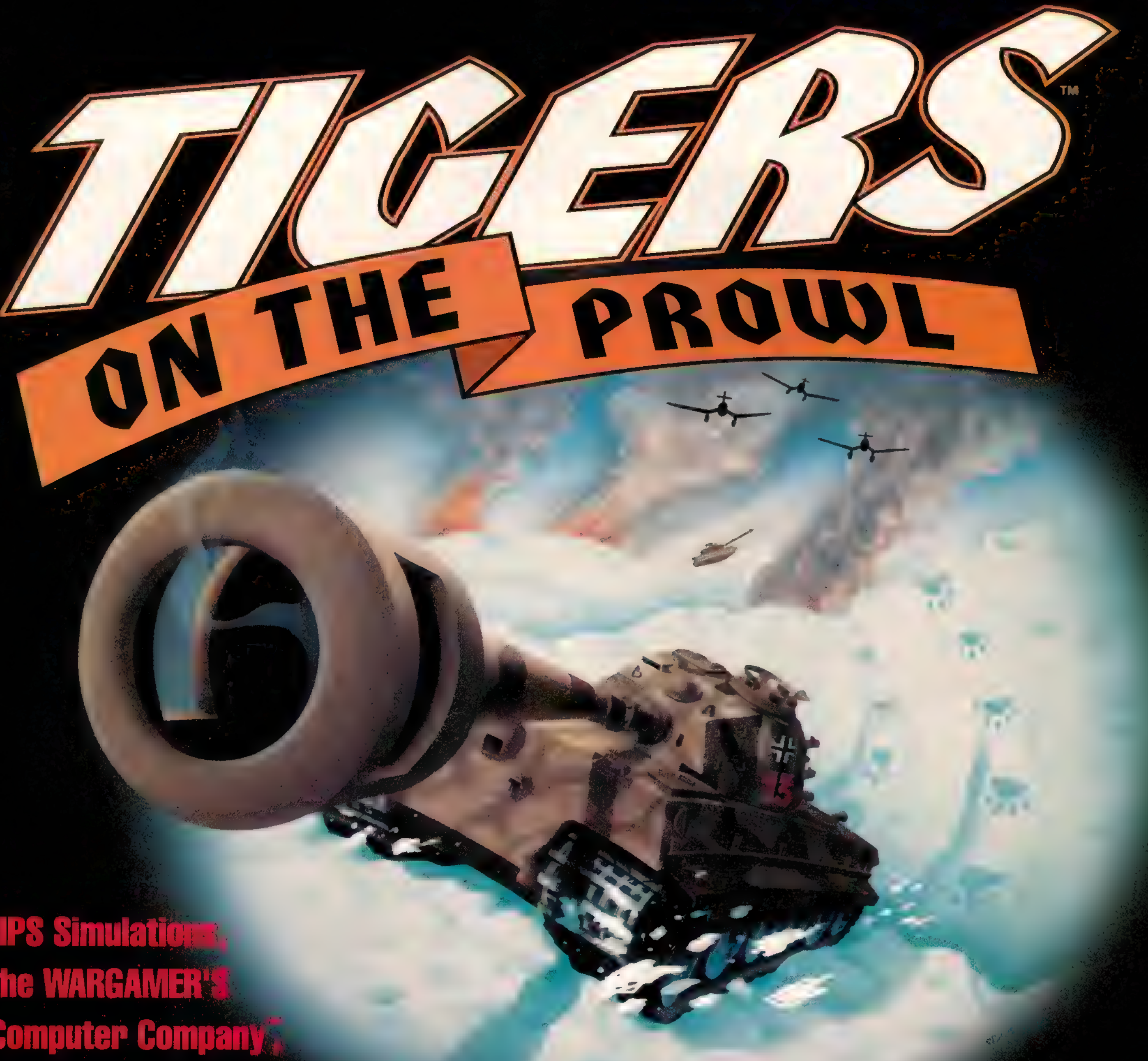
SYSTEM AND STRUCTURE

TacOps uses one-minute turns, but perhaps it would be more accurate to say that the game pauses every 60 seconds to let you review, change, and give orders. When playing against a human opponent, both sides get to alter orders before the action resumes. The game allows the player(s) to choose from a number of options. The players can play on a single computer by switching seats and/or averting eyes during the orders phase. Or they can play using two Macs connected by an Appletalk network. As a third option, they can play by sending a saved game file back and forth by e-mail. In all two-player modes, password protection guards your military secrets from prying eyes.

TacOps includes eight different maps, but they are all hypothetical. There is no map editor, so you are stuck with these, but the main map is large and different parts of it are used in different scenarios. Terrain is rather simple, consisting of only two elevations and a few basic types: clear, wooded, rough and urban. Still, this is enough to give some complex line-of-sight (LOS) situations. There is a nice LOS checker available from the Map menu, and you will learn LOS quickly. The lethality of modern weapons is such that if you can be seen, you can be killed. An area roughly 5000 by 7000 meters is displayed on the screen and effective ranges of many of the missiles are 8000m or more, so you have to stay alert to LOS possibilities off the edge of the screen.

Given all these dangerous devices waiting to do you in with one shot, a minute is an awfully long time! If you give orders to an APC to drive down this road and 15 seconds later it starts to take fire from a 120mm AT gun, it had better do something besides advance for the next 45 seconds, or it is toast. TacOps handles this situation well by allowing you to set "Standard Operating Procedure" (SOP) for each unit. You can tell it what to do if fired upon: stop, reverse, pop smoke, or any combination of these tactics. Your units will fire automatically when they spot enemy units. You don't have to give orders for this, but you can set tactical doctrine. You can set the maximum range and select target priorities by type or location.

TIGERS™ ON THE PROWL



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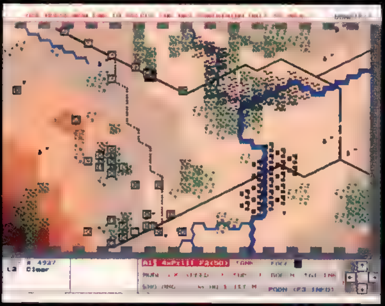

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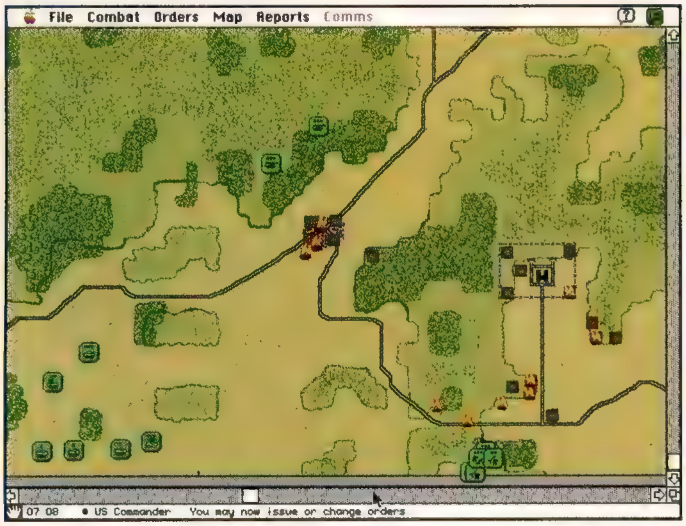


07 08 ● US Commander You may now issue or change orders

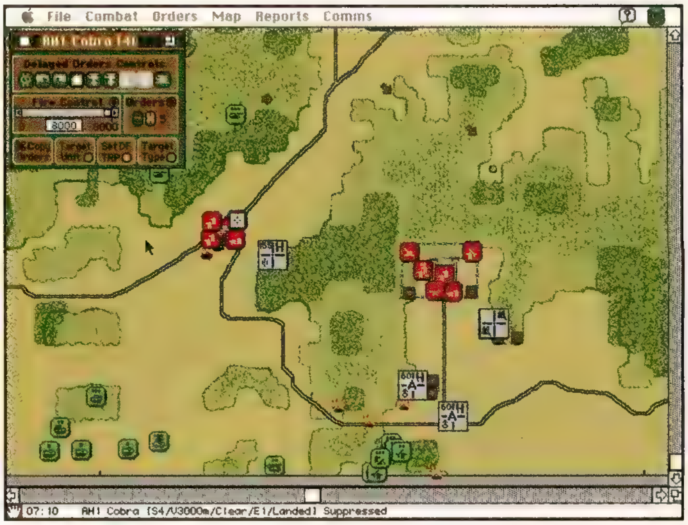
FORCED NUCLEAR INSPECTION US Marine forces move in on an OPFOR nuclear facility (middle right). The mission: capture the facility and hold it for one hour.

TacOps makes effective use of sound and graphics to convey combat results. The sound is the key to what type of weapon is firing at you. In solitaire mode, you can see all of your units all the time. OPFOR units appear when they are sighted. In two-player mode, only those units that can be seen by the enemy are visible. This provides lots of fun and excitement because you get to watch the expression on your opponent's face when his tank column runs into your ambush. Of course, you should start getting nervous yourself whenever you discover him watching your face!

WHERE'S THE FIGHT TODAY?

Most of the battles are somewhere in a forested, hilly country against an enemy with modern Soviet weaponry. You can fill in the details yourself if you want—is it Europe or Korea? Is OPFOR really our friends the Russians? Would they even sell their latest weapons to one of our enemies? While the historian in me wants to know, this is not really in keeping with the nature of TacOps. We are supposed to be interested in the performance of the weapons systems under battle conditions, not guessing at the identity of our hypothetical opponent.

In keeping with this philosophy, the game omits all of the factors that cause uncertainty and confusion on the battlefield: weather, morale,



07: 10 AH1 Cobra [S4/U3000m/Clear/E1/Landed] Suppressed

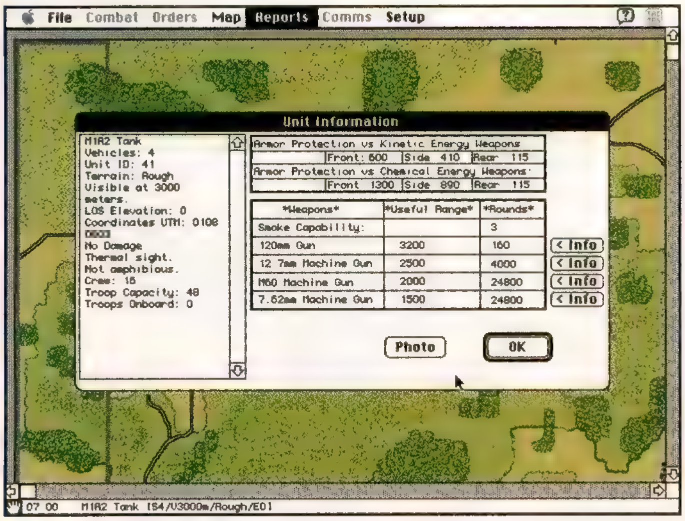
COBRA COMMANDER A cobra helicopter is ordered to peek over the tree line and recon an enemy-held town. Of course, this is totally unnecessary as we've turned off the "fog of war" option, revealing the position of all enemy units.

command control, and such. In a scientific experiment, you must keep factors like the performance of the troops constant to observe the differences that weapons make. The result is a game with a clinically sterile feel to it. To really "get into" TacOps, you have to really get into weapons performance. Still, a few of the scenarios can be readily placed—could this nuclear weapons plant belonging to a small terrorist power be Iraqi? *Sure* it could. Let's go show Saddam who's boss!

TacOps is an excellent method to learn modern tactical doctrine. Helicopters and missiles make for a very different kind of combat. While infantry must still do the job on the ground, getting them to that particular piece of ground—and getting them out again—can be very tricky as choppers and APCs seem terribly fragile, and walking, as the song says, is "much too slow." Learning how to play the game is easy, the manual is excellent, and there is a clear, easy to follow tutorial that will get you into the game with no wasted effort. It doesn't go very far in teaching you the proper tactics, however; this is something you must do by experimenting on your own. The manual is also lacking a reference section on the weapons portrayed—does not even explain what the various acronyms like TOW and SAM stand for. If you've studies up on your hardware, it's no big deal, but the game would be more interesting and accessible to novices if this were included.

THIS IS NOT YOUR FATHER'S T-34

It's interesting to compare TacOps with board games that simulate weapon systems in great detail. Advanced Squad Leader (ASL) is pre-eminent, of course, but not easy to compare since there is a big difference between a squad leader



Unit Information

M1A2 Tank
Vehicles: 4
Unit ID: 41
Terrain: Rough
Visible at 3000 meters.
LOS Elevation: 0
Coordinates UTM: 0108 [illegible]
No Damage
Thermal sight.
Not amphibious.
Crew: 16
Troop Capacity: 48
Troops Onboard: 0

Armor Protection vs Kinetic Energy Weapons			
	Front: 600	Side 410	Rear 115
Armor Protection vs Chemical Energy Weapons			
	Front 1300	Side 890	Rear 115

Weapons	*Useful Range*	*Rounds*
Smoke Capability:		3
120mm Gun	3200	160
12 7mm Machine Gun	2500	4000
M60 Machine Gun	2000	24800
7.62mm Machine Gun	1500	24800

07 00 M1A2 Tank [S4/U3000m/Rough/E0]

THE TECH SPECS TacOps contains very detailed information on the military hardware in the game, all of which is accessible at any time.

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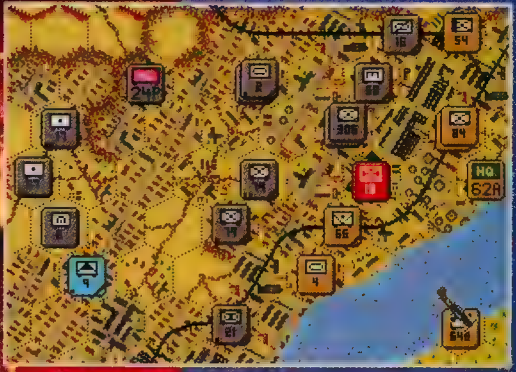
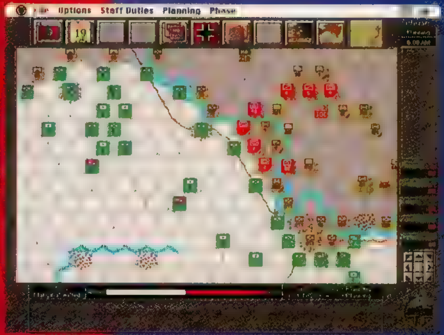
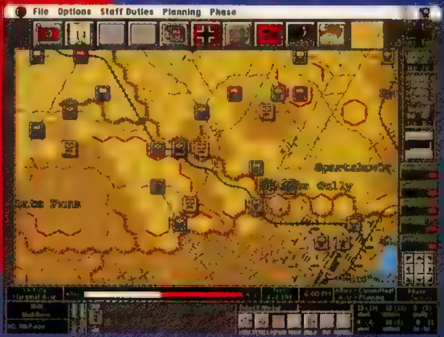


German assault on the Tractor Works.



Stalin's powerful Red Army is poised along the Don River, ready to strike!



German infantry and armor race for the Volga.

Actual screen graphics may vary.

Following fast on the success of Operation Crusader comes STALINGRAD, VOLUME II of the *World at War™* series of computer wargames. This collaboration between Avalon Hill and Atomic Games highlights the epic struggle that sealed the fate of Hitler's Third Reich. Multiple historical scenarios simulate the grim battles ending with the annihilation of the German 6th Army. In a unique advance in computer gaming, players will be able to switch from the sweeping strategic scale (depicting such actions as the collapse of the Axis flanks) to the tactical scale (simulating the block-to-block bloodbath within the city itself). Built upon the award-winning Crusader game system, Stalingrad is jam-packed with stunning graphics (the terrain even changes as the weather changes!). Documentation includes a detailed, full-color manual and large battlefield map. Stalingrad is sure to excite even the most sophisticated gamer.

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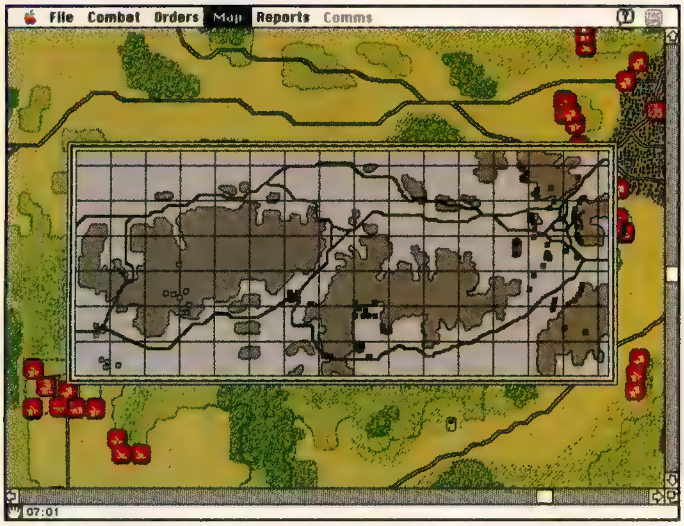

THE BIG PICTURE The situation map reveals the entire area of one of eight TacOps maps. There's no map editor, but you can edit the scenarios to your heart's content.

and a battalion commander. ASL also tries to simulate all of the conditions that affect troop performance, and is more a game of morale than weapons. A better comparison is with the game Tobruk. Published by **Avalon Hill** in the early 1970s, Tobruk elevated anti-tank gun and armor simulations to new levels of realism. You rolled dice for every round fired to see whether it hit, to see where it hit, to see if it penetrated the armor, and to see what damage it caused. For the first time, you could have immobile tanks that could still shoot, or tanks with knocked out guns. It was exciting at first, but went to the shelf fairly quickly after you tried an engagement with a dozen or two tanks on each side. With rates of fire of two or three per turn, you were rolling the dice several hundred times per turn. TacOps has similar, maybe even better, levels of detail, but by taking care of the mechanics of dice rolling, it leaves you free to consider fire and movement, and is very playable.

TacOps is obviously a labor of love. Major Ian Holdridge (USMC, Ret.) performed the rare feat of both designing and programming this simulation. The result is a very clean design in which I have not found a single bug. TacOps will appeal to anyone with a serious interest in the modern battlefield.

[Arsenal plans a Windows version of TacOps for Spring of '95. The Windows version will have the all of the multiplayer options (modem, serial, e-mail) available in its Macintosh sibling. —Ed.]

THE EDITORS SPEAK

TACOPS

RATING ✸✸✸✸

PROS An extremely detailed simulation of modern tactical warfare, going so far as to track each round of ammunition fired. Modern military buffs will be in hardware heaven.

CONS Between the bland graphics and the lack of such things as morale and command control, the game can seem a bit sterile.

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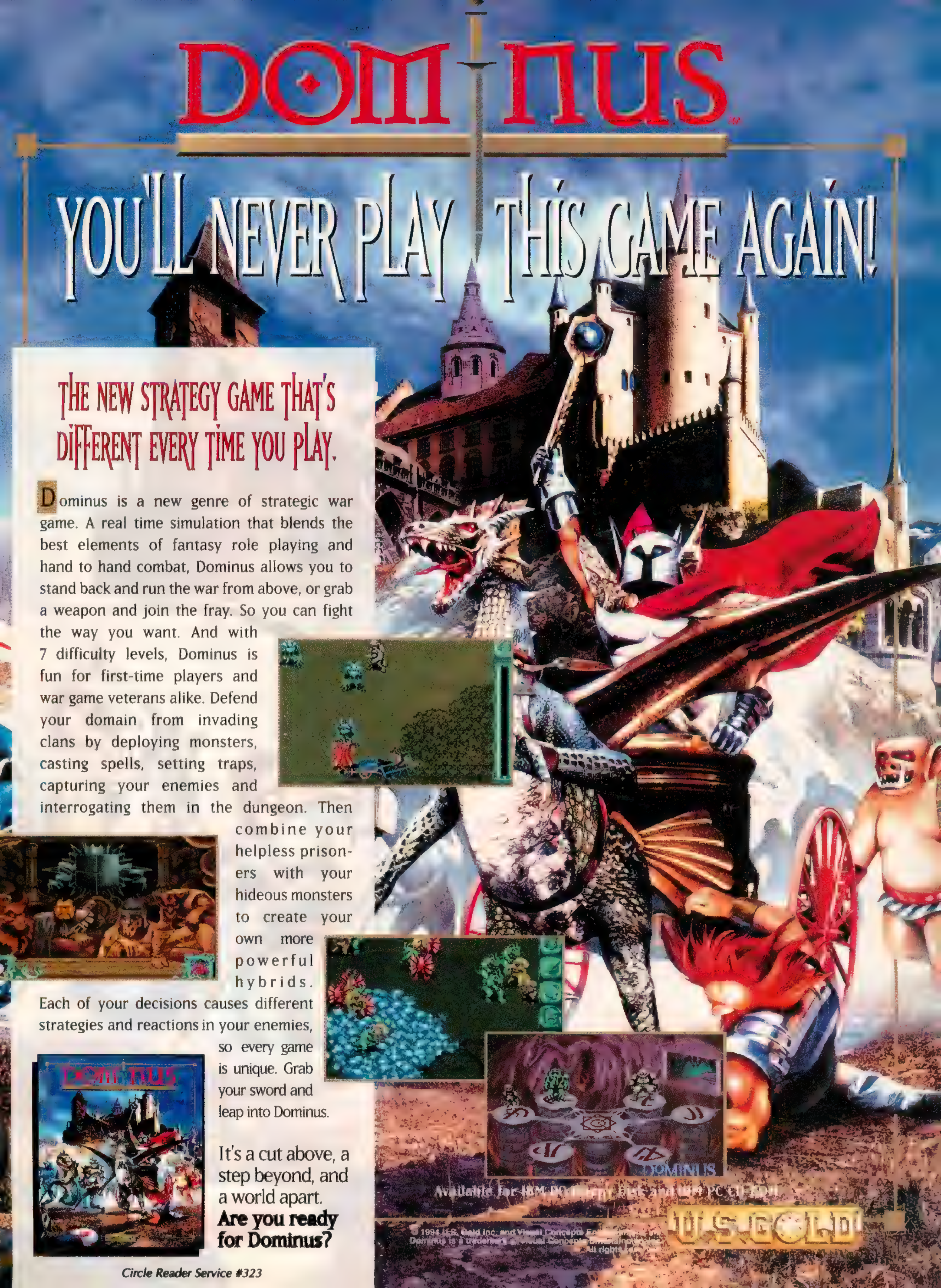

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Available for IBM PC [illegible] and IBM PC CD-ROM

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Sub Patrol Zones And TLAM Slams

How To Use Patrol Zones, Tomahawks And Coordinated Attacks To Cripple Your Enemy In HARPOON II; The Last In A Three-Part Series

by Tom "KC" Basham

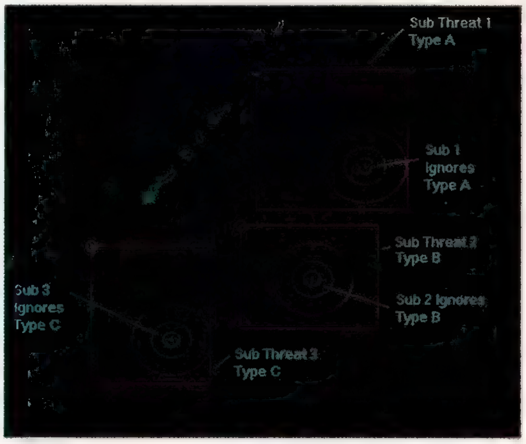
We conclude this series with a medley of HARPOON II tips and tactics. We've only scratched the surface of HARPOON II here, but armed with these tactics your noble forces should celebrate glorious and well-deserved victories over the enemy's inferior stratagems.

LURKING BENEATH THE SEAS

The human player can control most units better than the artificial intelligence. Hand controlling a unit almost always provides better results than assigning the unit to a mission. Except for submarines, that is.

Submarines are probably the only units best left to computer control. Since a submerged sub cannot communicate with other ships, and since a submarine may remain submerged for two or three days of game time, you cannot micro-manage a submarine unless you either make the submarine your flag ship or you enable the communications cheat mode. If you make the submarine your flag ship, you'll retain total command of that unit, but lose control over all other units when you dive. Most often you'll surface and find nothing left of your battle group except burning hulls. Therefore, you have little choice but to leave the submarine to the computer's guidance.

Fortunately, the submarine artificial intelligence works pretty well. I define a kill box using reference points, then assign the submarine to an ASW or ASuW patrol as needed within those reference points. Your forces will always assume a submerged contact to be hostile until proven otherwise, so be careful when creating submarine patrol zones. Make sure that the submarine is the only ASW unit operating within that zone. Ships, ASW aircraft, and other friendly submarines will fire on any sub they detect!



KEEP 'EM SEPARATED Exclusion zones control submarine patrols and ensure that your subs are not attacked by friendly forces.

Since units willingly leave their assigned mission zones to investigate targets, you must exercise caution when assigning submarines near your surface groups or near other friendly submarines. Exclusion zones work well for controlling submarine patrols.

For example, define two submarine patrol zones next to each other; we'll call them November and Oscar. Draw a type "A" submarine threat exclusion zone over patrol zone November. Draw a type "B" submarine threat exclusion zone over patrol zone Oscar. Place a submarine in patrol zone November and order it to ignore type "A" exclusion zones. Place a submarine in patrol zone Oscar and order it to ignore type "B" exclusion zones. Each submarine can now freely explore its assigned patrol zone but cannot enter the adjacent submarine's patrol zone. Likewise, exclusion zones can be used in this manner near surface ships or maritime patrol aircraft to ensure your submarines are not engaged by friendly forces.

ANCIENT CHINESE SECRETS

Coordination is the key to combat. Confucius say: "He who can balance an orange on his nose while juggling flaming knives riding a unicycle will win most battles." Or maybe that was Sun Tsu. Either way, the point is this: proper force coordination is crucial to combat.

And coordination often requires patience. Don't rush attacks just because part of your faster forces are already in firing position. Most attacks require overwhelming firepower to defeat enemy defenses. Make sure the ECM-equipped and TALD-carrying aircraft arrive on station slightly before the main strike group. Make sure all units are in proper strike position before firing. Long-ranged shots are less successful than short-ranged shots for a multitude of reasons, so attack from maximum range as a last resort only.

RIGHT TOOL FOR THE JOB

U.S. forces deploy many types of BGM-109 Tomahawk missiles. The Tomahawk Anti-Ship Missile (TASM) is the longest-ranged anti-ship missile available to U.S. forces. Tomahawk Land Attack Missiles (TLAM) give the U.S. Navy considerable land-attack firepower, as evidenced by

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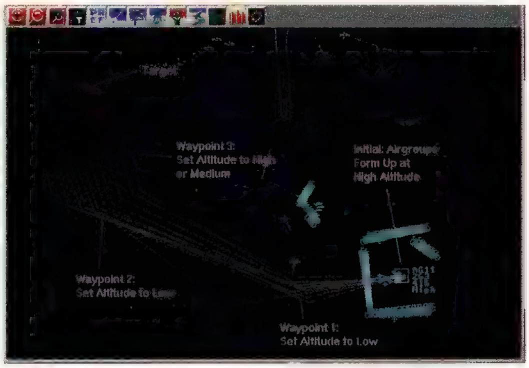
their effectiveness during the Gulf War. Not all Tomahawks are created equal, however. The BGM-109B TASM is unusable against land targets, while TLAM variants are unusable against ships. Further, the TLAM family consists of several variants specialized for different types of targets: the BGM-109A (TLAM-N) nuclear-tipped missile fills the sea-based leg of the nuclear triad, the BGM-109C (TLAM-C) uses a single 454kG warhead to blast through heavily fortified structures, and the BGM-109D (TLAM-D) delivers a submunition warhead which functions like a giant, devastating cluster bomb.

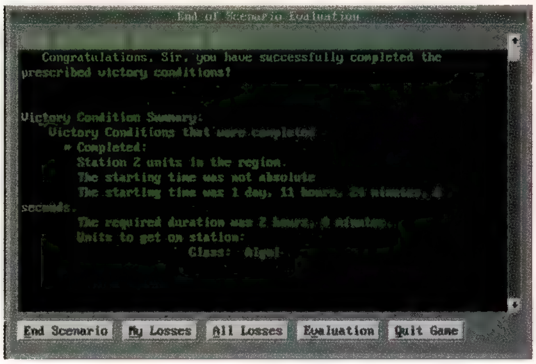
The TLAM-C's potent warhead is best suited for large, reinforced structures, while the TLAM-D's submunition warhead works better on softer targets. Some complex targets, such as hangars and SAM sites, often have multiple "sub targets." A typical hangar may have four individual buildings, but show as a single unit on the map. All sub targets have to be destroyed to completely kill that specific unit. Harpoon II uses a fairly complex damage system which tracks numerous items such as damage control and spreading fires. A single TLAM-C may destroy a single building, starting a fire in a second building which eventually spreads and destroys the whole unit. Conversely, the damage from a single TLAM-C might be minimal and contained. The TLAM-C blasts through hardened bunkers well, but doesn't wipe out entire bases; several TLAM-Cs are required to guarantee a complex target kill. A single TLAM-D, however, will most likely destroy numerous buildings or wipe out an entire tank farm instantaneously. TLAM-Ds, however, have relatively little penetrating capability and generally should not be used against hardened bunkers. Most military targets contain a variety of structures requiring a mixture of TLAM-C and TLAM-Ds. Of course, the entire point may become moot if you're granted nuclear release...

FILL 'ER UP

Harpoon II includes a resource the original Harpoon sorely lacked: inflight refueling. Several aircraft, such as the A-6 Intruder, can carry multiple fuel tanks in place of weapons and provide a "filling station" for fuel-hungry fighters. Click on the desired aircraft, press the "air ops" button, then double-click on the desired tanker.



THE GAME PLAN Proper strike coordination requires planning, timing, and vigilant attention to the details.



```
  Congratulations, Sir, you have successfully completed the
prescribed victory conditions!

Victory Condition Summary:
   Victory Conditions that were completed
     * Completed:
       Station 2 units in the region.
       The starting time was not absolute
       The starting time was 1 day, 11 hours, 24 minutes, 4
seconds.
       The required duration was 2 hours, 0 minutes.
       Units to get on station:
                   Class: Algol
```

THE THRILL OF VICTORY When you execute a well-made plan, you'll get this, while Commander Grushenko just gets executed.

Air-to-air refueling in Harpoon II has some quirks, though. One, the tanker aircraft must be loitering. If the tanker isn't loitering, the recipient ignores the refueling order. Two, tankers transfer fuel at a fixed rate and always completely fill the recipient's tank. If the tanker doesn't have enough fuel to accomplish this, the recipient ignores the refueling order. A single KA-6 can refuel one or two fighters, but large tankers (like the KC-10) are required to service large flight groups. Three, tankers can be launched in groups, and an entire fighter group can be sent to a tanker group to refuel. But, as before, if the tanker group cannot completely service the recipient group, the entire recipient group ignores the refueling order. Four, once in a great while something goes wrong with the tanker and it simply freezes on the map. Recipient aircraft circle it endlessly, never linking up. If this happens, zoom the map in until you can draw an air threat navigation zone around the tanker aircraft without including the "confused" recipients. The automatic navigator kicks in trying to resolve the path through the new navigation zone and seems to "wake" the confused units up, including the tanker.

Also, always remember: the tanker aircraft burns the same fuel supply it shares with the recipients. As the tanker pumps gas and the recipient's endurance increases, the tanker's endurance decreases. Tankers seem reasonably intelligent and will not transfer fuel it if jeopardizes their own bingo fuel requirement.

THE OLD CRIPPLED SHIP PLOY

Harpoon II includes many subtleties "under the hood," many of which significantly impact play but may never be noticed by the player. The Harpoon II world resolves down to 18 inches. That means an object can exist every 18 inches, that courses are plotted with minute accuracy (compared to similar games), and that missiles can miss by, yes, 18 inches. Further, each ship has a damage control team that may or may not be able to stop a fire, flooding, etc. Some non-critical hits may force a ship to stop and make repairs, but its weapons may still be on-line just waiting for your fighter to stray too close. In one case, I tracked a damaged Udaloy for about 18 hours. Burning, it slowed to a creeping 5 knots for a few minutes, then eventually came to a dead stop. Assuming it was dead in the water and probably sinking, I dispatched a recon patrol to check up on it. I quickly withdrew the recon patrol when the Udaloy began firing surface-to-air missiles at it. As I watched from long range, the Udaloy appeared dead in the water for several hours. Suddenly, without warning, it got underway at 5 knots! Its battlegroup had long since abandoned it, so it set out on a direct course for the nearest Russian-held port. Apparently the "crew" contained the fire, stopped the flooding, and sufficiently repaired engineering.

This is just one example of how Harpoon II models real naval warfare more accurately than the first Harpoon. As a result, players must rely more heavily on real-world tactics and not on weaknesses in the artificial intelligence. I hope you've found this series beneficial. Good hunting!

Tom Basham and Ed Dille co-authored Harpoon II: The Official Strategy Guide from Prima Publishing.

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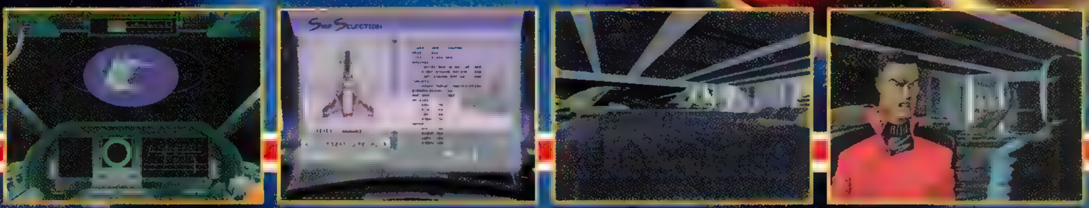

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OPPONENTS WANTED

Looking for a Patton to play against your Rommel? Need some fresh meat for network Doom-fests? On the hunt for a gamers BBS in your area? Well, you might find what you need on CGW's White Page. If you'd like to place your own ad, send us a postcard, CGW Poll card, letter, FAX [714-283-3444] or e-mail (Prodigy [EXPT40B], CompuServe [76703,622], The Sierra Network at [Box 1048], GEnie or America On-Line at [CGW] or over the Internet [76703.622@compuserve.com]). Generally, we run ads once, so send a letter each month if you want to keep your name listed. The ads themselves should serve as reasonable examples as to how to write your own. However,

- Provide at least one telephone number. Do not forget the area code and mention whether the number is Home, Work, or Modem.
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***Computer Gaming World* magazine also appears as its own Forum on CompuServe's *ZiffNet*. To access our editors on-line, just GO GAMEWORLD. Topics include: Hey Editor!, Opponents Wanted, The Hardware Zone, Online Gaming and many more. Join us, won't you?**

OPPONENTS WANTED

Opponent wanted for PBEM of Operation Crusader. Contact Aaron Barak, Seattle WA, (206) 935-8052. Or on AOL, Merrilon@Aol.Com.

Doom death match player wanted in Rhode Island/Providence area. 14,400 modem is a must, call (401) 724-5124.

Fellow Space Marine needed for Doom within (612) area code. Under 16 years old please. Call Chris Howe at Maple Grove, MN (612) 493-3077.

Opponents wanted for Dark Legions and Syndicate. Zarif Khairuooin, 4052 Minnehaha Ave. South, Apt. 115, Minneapolis, MN 55406, (612) 721-1334.

Opponents wanted in A.B.E. area for Falcon, F-15, Seawolf, etc. Call Pete Parvis at (610) 759-1124 [voice] or (610) 759-2365 [data], Nazareth, PA.

Looking for someone to Doomnet with—only (309) area code. J. Sean Lockard, Peoria Heights, IL, (309) 688-6061.

I am still looking for Deathmatch Doom opponents at (717) 270-0522. Dave in Lebanon, PA.

I want to play Doom or Doom II with YOU over the telephone lines! If you are brave enough, e-mail me at bubba@brewich.com or Andrew.Williamsen@dbgarden.macaw.com, or call me at (713) 360-1794.

Opponent wanted for Modem Doom in (716) area code, Rochester, NY. Leave e-mail for D.STUMME@genie.geis.com. Either Deathmatch or cooperative is fine.

I'm seeking local opponents in the Shallotte, NC area who would like to play Indy-Car Racing, Stunts, or Doom at 9600 baud. Call James at (910) 754-9110.

Doom fodder wanted in Dallas-Ft. Worth area. Call Joe Porter at (214) 270-5605.

Never played via modem before and would like to try. Call Alan at (402) 551-8692, or write me either at aray@s-cwis.unomaha.edu.

Doom players wanted: Kevin Garlotte, Peoria, IL, (309) 692-4136.

Opponents wanted for Doom death fests, Falcon 3.0 head-to-head, and pretty much any other game you can think of. Call Josh Holmes at (604) 254-3235 after 6 PM Pacific time.

Deathmatch opponent wanted for Doom 1.666 modem battle! Internet address: darrinr@pipeline.com

Modem players, call Patrick at (910) 629-0821, preferably players for Falcon 3.0, MiG-29, Hornet or Operation Fighting Tiger. I live in Asheboro, NC—let's fly!

David Coates, Jr., (212) 487-4213 [office] (718) 892-2302 [home] looking for Doom players in NYC. We have two other players, and we are looking for new players to gobble up. Call us if you want good competition!

Looking for people to connect modems for Doom play. I prefer episode 1. Locally only please; if interested, call me in Chester, NJ at (908) 879-2264. Please call—I haven't had a decent challenge in weeks!

Seeking opponents for Grandest Fleet or Conquered Kingdoms. If you are from my local Olympia, WA area, feel free to contact me for sharing of long distance costs. Call Don at (206) 456-5410. Please leave a message. I can also be reached on Compuserve at 74437,1104.

Seeking opponents for F-15 Strike eagle III, Falcon 3.0 and Doom. Please call at [home] (803) 283-1092 or (803) 283-1082, and ask for Gladden. I am willing to pay for long-distance to reach you from Lancaster, SC. I may also be reached on Prodigy: MDBD43F, or Internet: either MDBD43F@Prodigy.com or GPappin@roadlt.fort-lawn.sc.us

I'm looking for some *Doom!* opponents in the Chattanooga, TN/ North GA area. Call Brandon at (706) 861-2029 (local call from Chattanooga).

Seeking local opponents only in the Oahu, Hawaii area for *Doom! Seawolf* and *Falcon 3.0*. Call Scott in Waianae at (808) 695-9113.

Doom!, anyone? I'm seeking local players in the Stamford, CT area. Call me at H-(203) 322-7472.

Red Baron fans who would like to share scores, career info, and anecdotes about your experiences with the sim, contact Charlie Kilbourne at 14706 Willoughby Road, Upper Marlboro, MD 20772, or call (301) 627-3741.

Opponents wanted for *VGA Planets* in the Los Angeles area. Also willing to host the game, if need be. I have a registered copy and can play either regular or registered. If I host, I will play and employ the password option to insure that I am not cheating. I am using *VGA Planets 3.0* — Call Mike between 6pm and 9pm Pacific Time at H-(213) 222-6011. (Please don't call at any other time!)

I'm seeking local opponents in the Clarksburg, WV area who are up for just about any type of modem game. Call Jason at H-(304) 783-5228.

Wanted: a modem opponent in Northeast Maryland for *The Perfect General, Command HQ, Empire Deluxe* or other PBM games. Call Josh in Hanford county, MD at H-(410) 939-1021.

I'm looking for some intense competition in the local Pittsburgh, PA area for *Doom!* death matches. Contact Jim at H-(412) 884-7197.

DOOM death match players wanted in the New Orleans, LA area. A 14,400 V42BIS modem is required. Call me at H-(504) 838-6129.

Seeking local opponents in the Vancouver, BC area to do battle in playing *Seawolf, Doom!, Command HQ, 688 Attack Sub* or any other games by modem. Call David in the lower mainland area anytime at (604) 264-7998 and let's do battle!

San Diego area gamer looking to connect with *Indycar, World Circuit, Seawolf* and *DOOM*. I have a Viva 14.4 modem. Call anytime after 4pm or on weekends (which are best). Ask for Gary in El Cajon, CA at H-(619) 579-6575. See you at the races....

Looking for a play-by-mail game of *Front Page Sports Football* or modem games of *Empire Deluxe* or *Falcon 3.0.* Call Mark at H-(703) 777-1749 after 6pm EST. I'm in the northern Virginia area.

Seeking opponents in the Chicago area (708 or 312) for *Command HQ*. Call Joe at (708) 782-6272.

I am looking for people in the Illinois area for a round or two of *The Perfect General*. I'll call you if you are afraid of high phone bills. You can reach me at home at (708) 438-2073 (be sure to leave a message on the answering machine) or email me on the GEnie network at J.Goldbogen.

Local opponents sought in the Chicago/Peoria area for any modem gaming, especially *The Grandest Fleet, Conquered Kingdoms, Empire Deluxe* and any that you think you can win at (hehehe). Call Bill at H-(708) 599-6558. Be sure to leave a message.

Opponents wanted to get involved in play-by-mail type games, particularly *Merchant Prince, Empire Deluxe* and others. Call Keven at H-(717) 645-9757 or write to Keven Faenza, 54 West Miner St., Coaldale, PA 18218.

Seeking opponents for modem play in the Colorado Springs, CO area. I would love to play *The Perfect General, Empire Deluxe, Modem Wars* or just about anything else you've got a hankering to lose at (heheheh). Contact Steve Woodcock at H-(719) 392-2975 or by email via the InterNet at: swoodcoc@oldcolo.com.

I'm seeking statewide opponents for the following games: *DOOM, F-15 III* and *Falcon 3.0*. Please, call Gladden at H-(803) 283-1082 or 283-1092 if you are in South Carolina or southern North Carolina. Other modem games possible. I am in Lancaster, SC. On Prodigy: [MDBD43F] or the InterNet [MDBD43F@prodigy.com].

I'm looking for a local gamer that would like an opponent for flight sims such as *Falcon 3.0* and *F-16 Fighter Pilot*. Also, *Doom!* players wishing to find a good opponent have one here. Call Sean in Simi Valley, CA at (805) 527-2031, or write to me on Prodigy at XJTR11C.

Opponents wanted for live network Death Match gaming in Goldsboro, NC for *DOOM*. Show up every Sunday at 1pm at MCS Computer, 309 N. Spence Avenue, or call (919) 751-5777.

THE NETWORKS

The following are voice contact numbers for the various on-line services that connect gamers. Get connected and go play in the middle of the information highway!

America On-Line: (800) 827-6364
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[illegible]	Walla Walla	WA
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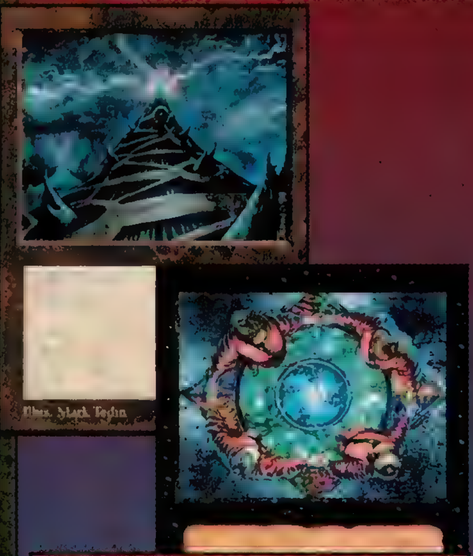

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Circle Reader Service #330

id The Beginning, Wolfenstein Created A Craze

by Chuck Miller

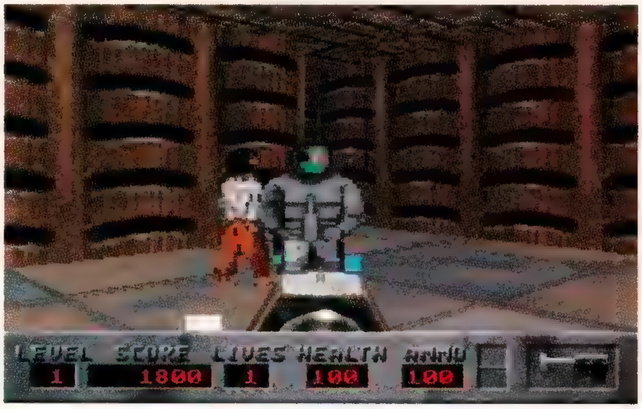
Id Software begat Wolfenstein 3D, and Wolf begat all the little Wolf pups—legions of 3D fast-action, first-person perspective shooters. This "idish"—if I may call it that for ease of description—game design has probably resulted in more cases of motion sickness, whacked-out equilibrium, and all night carnage-cavorts than any other game design in the history of the hobby. A brief list of games in this category include Blake Stone, Ken's Labyrinth, Corridor 7, and in the final stages of development as I write this, Dark Forces, CyClones, Heretic, Shadow Warrior, Return of the Gods and Rise of the Triad. Yes, I confess to indulging in most, if not all of the idish titles myself (including some in-depth "play-testing" of the Doom II beta). But hey, that's my job.

This month we'll look at two relatively new idish wannabes from the shareware sector, Depth Dwellers and Nightmare-3D. Both offer some excellent action, though for a potentially different audience. We'll also take a look at a more cerebral, puzzle-based adventure game for Windows entitled Entombed.

TO 3D OR NOT 3D

Referred to as the "first Stereographic 3D action game," Depth Dwellers is designed to be played while wearing those dorky red-and-blue-lensed, cardboard glasses made popular by 3D movies. Although the game does have objects that appear to rocket right out of the screen while you're wearing the spiffy spectacles, I personally find it eye-bugging enough to play this, or any other game in this genre, without 3D glasses. The effect of pixelated walls whizzing by at dizzying speeds is more than enough without this three-dimensional embellishment. I'll just wait for true virtual reality, thank you.

Depth Dwellers, published by **TriSoft**, offers idish 3D action in a sci-fi, otherworldly setting. The story goes something like this: as the son of Earth's ambassador to Ora, you have become involved in the struggle of this world against its bitter enemy from the neighboring planet Riase, the Ri. Centuries of war have taken their toll on both worlds and embittered the Ri against those living below the war-ravaged surface of Ora. These Depth Dwellers have been imprisoned and conscripted by the Ri to mine the mineral Zendle, a substance critical in the manufacture of a new weapons system. Your task is to free the Depth Dwellers and destroy the Ri, a race whose features look more mechanistic than human.



IN TOO DEEP? The Depth Dwellers can be a treacherous bunch, lurking around every corner. So, guard your rear.

Depth Dwellers' graphics don't match the splendor of the latest games, but they are slightly better than Wolfenstein 3D. The audio, however, is a noticeable improvement. I found the moans of the prisoners in chains awaiting my rescue to be especially realistic, almost creepy. Still, it's the play that makes this game enjoyable. The action is fast, opponents are challenging, and a huge cache of hidden treasure and equipment await your discovery.

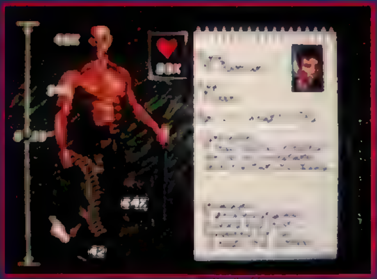
The only significant weakness in Depth Dwellers has to do with saving and restoring games. First, there are only four save game slots available. More significant, though, is the way the save and restore feature is implemented. To save, you select F1 through F4; to restore you use ALT+F1 through ALT+F4. Thus, if you want to restore your fourth saved game and your finger slips, you will end up *saving over* instead of restoring your game. The result—saving a hopeless situation over your previously saved game. This happened on numerous occasions, causing copious streams of invective to issue from my otherwise silken tongue. This feature's implementation was not thought through carefully at all.

The criticisms of game saves and average graphics aside, Depth Dwellers is a solid game. All three episodes are available for $39.95, plus $6 shipping and handling, and include 31 levels of play, a pair of nifty 3D stereo glasses, an automatic defense system and additional weapons. If you're fairly resistant to motion sickness, Depth Dwellers will keep you spinning for hours. To order a copy, contact: TriSoft, P.O. Box 83, Friendswood TX, 77546. Make checks payable to TriSoft and allow four to six weeks for delivery.

THE HORROR

A new release from the author of the Hugo trilogy, Nitemare-3D: A House of

Sabre Team



SELECT NUMBER OF ROUNDS TO FIRE

Four hostages are being held at the American Embassy in London's West End. You are in control of the smallest and most secretive fighting unit in the British Army - The Sabre Team. It is your duty to infiltrate the embassy, rescue the hostages, and treat the terrorists with extreme prejudice. Complete this mission successfully, then proceed on to four more scenarios: rescue British prisoners from a jungle POW camp, destroy a subversive underground nuclear installation, rescue a hijacked ocean liner, and destroy a hostile nuclear weapons center deep in the desert.

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MicroLeague interactive software

Circle Reader Service #213

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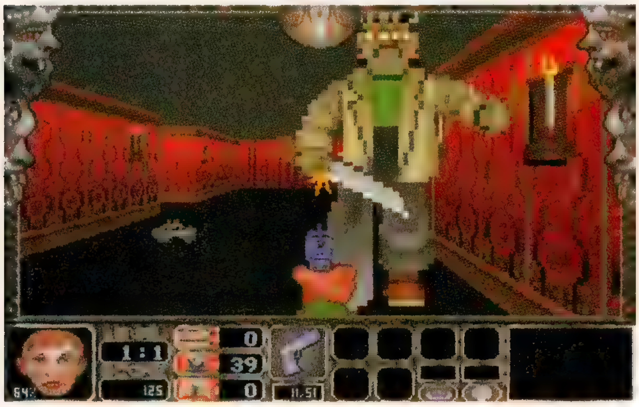
HORRORS is a great 3D shooter, especially for novice gamers. It also exudes less in the way of blood and gore than most of its contemporaries, making it a more appropriate title for younger players. That doesn't mean it isn't up to snuff for "real" gamers; it's just that it takes the less predacious gamer into consideration. Experienced players will want to select one of the higher difficulty levels for a sufficient challenge.

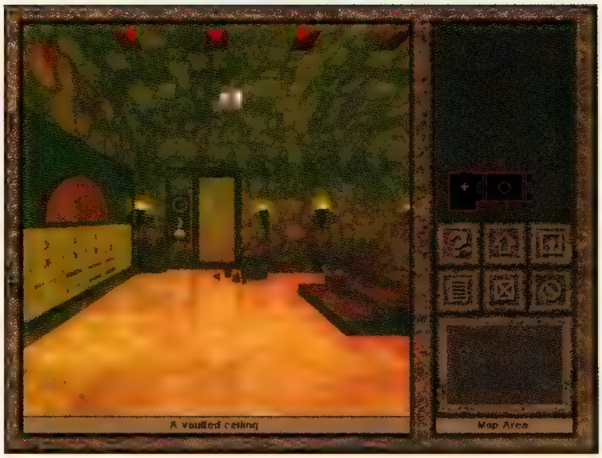
As Hugo, your task is to rescue the fair Penelope (a repeated theme in the Hugo games) from the clutches of the evil Dr. Hamerstein and his nasty minions. While a large percentage of play is spent vaporizing the ghouls, skeletons, witches, and other crazed inhabitants of Dr. Hamerstein's house, a good amount of time is devoted to searching for secret panels and the vital items hidden behind them, including keys and passcards. You can monitor your progress to find out the number of creatures still left alive (or is that undead?) and the number of secret panels remaining to be discovered.

Though NIGHTMARE-3D plays well, it did crash on me several times, even once while trying to save a game. This, however, may be due to my running it on a Pentium-based system. Graphics and audio are modest in comparison to what id Software and **Apogee** have in the works, but that certainly didn't detract from my enjoyment.



THE TAMED ID Although it can't compete with DOOM for sheer violence and fierce action, NITEMARE-3D is an ideal id-ish clone for the novice.

The NITEMARE-3D Trilogy is available for $29, plus $4 shipping and handling. Make checks payable to David P. Gray at P.O. Box 333, Northboro MA 01532. For credit card orders, contact the Public (software) Library at (800) 2424-PsL. You can also register on CompuServe by typing GO SWREG and entering NITEMARE-3D (the charge will appear on your monthly CIS bill). Registration gets you all three episodes, the full 30 levels (10 in each episode), including The Plasma Core and Death or Glory, four cheat functions, a 30-page hint booklet and full-page map viewer.



IT'S A FLOOR WAX Sporting an elegant interface and polished graphics, ENTOMBED for Windows offers challenging and brain-bending puzzles.

THANKS FOR DROPPING IN

Your ENTOMBED adventure begins when you fall through a hole while working on a new archaeology site in Tarsus. You're trapped in an ancient tomb, one that holds the remains of an advanced civilization and poses a "grave" danger to your life. If you want to survive you'll need to avoid traps, open locks, and solve the many riddles in each room of the age-old sepulcher in order to escape. To make matters worse, all you have at your disposal is your wits and the journal of Dr. Henry Who (sorry, there's no TARDIS to aid in departing from this abyss, that's a different Dr. Who), a collection of vague hints recorded by a previous archaeologist trapped in the same tomb a century earlier.

Beautifully rendered 640 x 480 VGA graphics and excellent "mood music" enhance ENTOMBED, providing the player with the slickest, puzzle-based Windows adventure I've yet seen. Everything about this title has been polished to perfection (the only exception is the inability to print out the game's documentation). Still, as masterful as its form and function are, even more compelling are the devious puzzles and riddles that await you in this title. This is NOT a puzzler for beginners! (In some ways, I wish the puzzles weren't quite so tortuous, as I've been left stumped by several.)

Upon first loading the game, it's clear that a great deal of design and effort have been invested here. The first of five episodes, this is a serious entry in the Windows entertainment shareware category. Even if you're not much of a puzzler, you owe it to yourself to check this title out. But be prepared for a challenge: it'll make your neural network squirm.

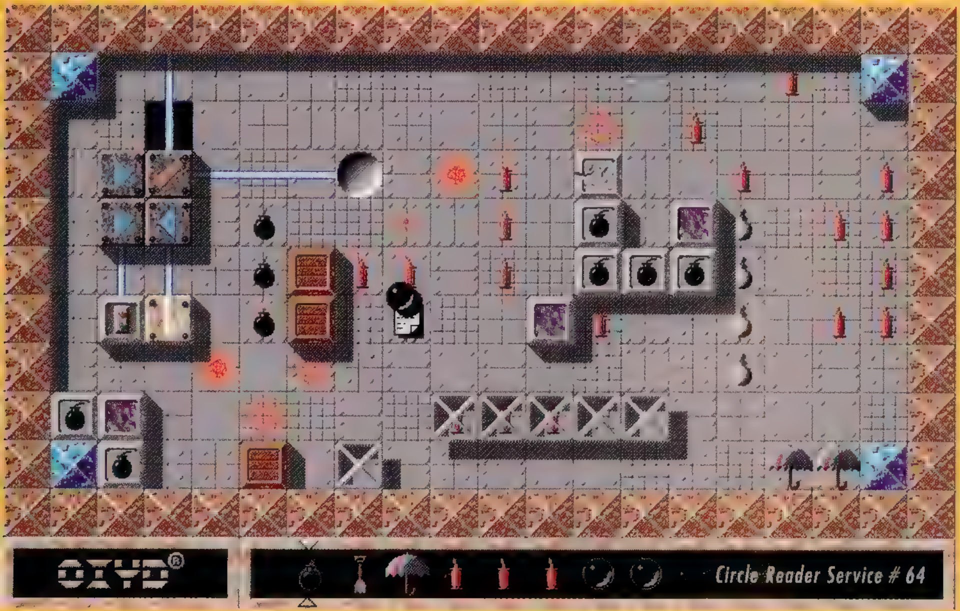
ENTOMBED is available for $39.95 (plus $2 shipping and handling) and includes all five episodes, cheat codes for episode one (a necessity), 40MB of gorgeous compressed graphics, animated sequences, an extended introduction, an involved ending sequence and, as unbelievable as it seems, even more challenging puzzles. Or, a CD-ROM version is available for $59.95 which includes enhanced sound effects and music. To order, contact: Software Creations, 26 Harris Street, Clinton MA, 01510, or call (800) 479-2227.

Chuck Miller, CGW columnist and editor of InterActive Gaming, is available on CompuServe at 72241,2122 and through the Internet at 72241.2122@compuserve.com.

To locate these games on-line, tune in to the *CGW* headquarters on ZiffNet. Games featured here can be downloaded from ZiffNet both on CompuServe and on Prodigy. On CompuServe, go to *Computer Gaming World*'s own forum (GO GAMEWORLD), Library 8, Shareware Sizzle. On Prodigy, jump ZiffNet and Search by Title for the games listed here. Or, Search by Category to browse the entire Games Library.

My son and I love this game!!! Great work!!

Robert Strauss, Burbank



My daughter (11 years old) and I have become "Oxyd" addicts. Thanks for creating such an excellent product. R. S., Germantown

This is, without question, the most impressive game I have ever seen. I am amazed at the audio, visual and action. George L. Tanty

One of the most elegant games I've played. Jeffrey Jondahl, San Diego

I enjoy this game a great deal and so do my children and their friends. It is just what I have been looking for !! Jerome Wescott, Minneapolis

I'm really impressed with your game, Oxyd. Congratulations on a unique and fun product, and best luck to you all. John M. Dodd

Oxyd has to be the most artistically superb piece of programming that I have seen. From my position of having completed about one third of the single-player levels, the landscapes have been continuously varied with a marvelous attention to graphic and audible detail that makes each new one a continuing delight. I especially appreciate how the marble interacts in seemingly realistic but different ways when rolling over or bouncing against different "natural" (or unnatural) substances like stone, wood, swamp, freefall etc. Jeffrey R. Harrow

Wow! That's all I can say about Oxyd. What an incredible game!

I'm completely hooked! The game is really slick, well designed.

It is rare to find such a visually appealing, addictive and playable game.

I just had to write to tell you how much fun I've had playing Oxyd. The attention to detail - the sounds, the textures of the surfaces - really adds to the fun of the game. It invites the imagination for a ride.

Thanks also for making all of the landscapes challenging but not impossible. Tom Phoenix, Portland

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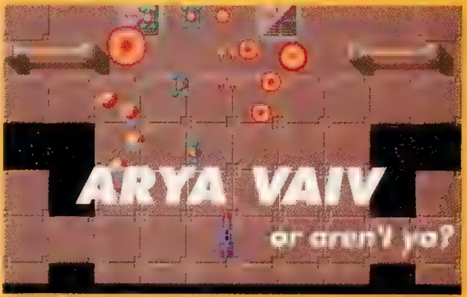

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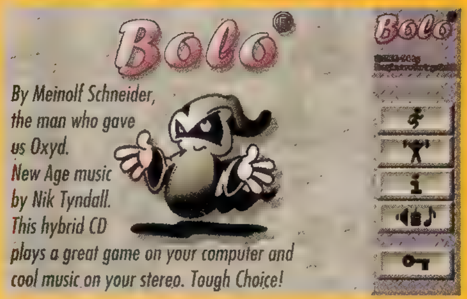

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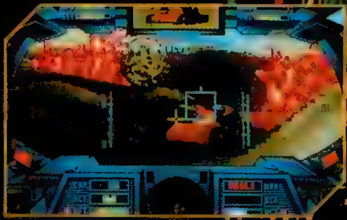

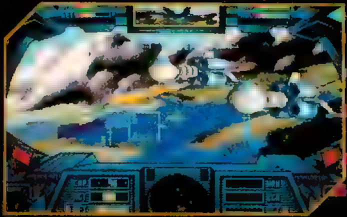

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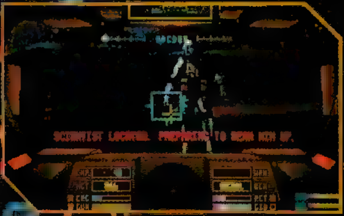

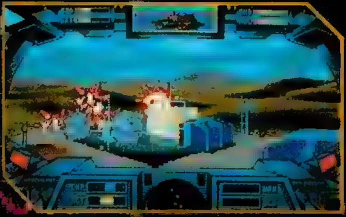

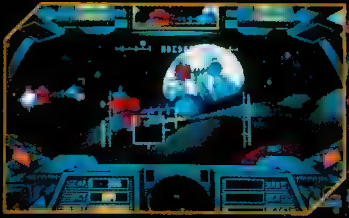

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The Sounds Of Violence

How Bobby Prince Created His Violence Concerto For Doom II

by Paul C. Schuytema

When a movie is filmed, the only sounds that are recorded during the filming are the actors' voices. Every other sound has been created in the sound studio: the creak of a door, the patter of a child's footsteps, and the report of a gun. It is up to a team of sound designers and engineers to dub in music and sounds to bring an aurally dead scene to life.

Computer games are similar to movies in this respect. Sound effects are usually created by a sound engineer whose work is integrated into the program at the very latest stages of development. Until that time, a game is a lifeless landscape, bereft of even the beeps and boops of the PC speaker.

For this month's column, I interviewed an audio wizard to find out how sound effects are recorded, edited, and integrated into a finished game. I chose for my subject Bobby Prince, the composer and sound designer for two games whose aural impact is nearly as powerful as their visual intensity—Doom and Doom II.

GROWLS GREATER THAN LIFE

"You have *got* to make the sound greater than life," says Prince, who started working with **id Software** back in the Wolfenstein 3D days. "Gun sounds have to be large...for a pistol shot, you start with a rifle; for a shotgun blast, you use the sound of a cannon."

When Prince started on the Doom project, he completely bought into the fantasy of "hell on Earth." Prince couldn't just create any old sound—he had to know the context and the characters of the hellish environment. After seeing the animation for the spider demon, for example, he peppered the designers at id with questions: "What does his mother look like?", "Was his father hatched, or put together?", "Did his mother take care of him when he was a baby?" These questions helped Prince get a handle on the personality of the demon, and to design sounds which reflect and enhance its "reality."

Prince went through a similar process as he was developing sounds for the Archvile in Doom II. "He reminds me of that guy on those 'Keep on Truckin' bumper stickers, with real long legs. He takes these long steps and is real sophisticated in his evil," says Prince. "He is the kind of demon who just wouldn't understand why you want to hurt him...he's only doing what he was created to do."

To capture this characterization in sound, Prince recorded his young niece, Joy, screaming the word "why" and mixed that sound with some animal growls and human groans. He pitch-shifted Joy's voice down to an unearthly level, creating a truly evil sound.

For Doom II, Prince designed four primary sounds for the major players in the game: the sight sound (aha, I've seen you!), the active sound (I'm moving around right now, I could be just right around the corner), the hurt sound (ouch, you've hit me) and the death sound. For the big spider demon, the death sound was an amalgamation of many components. The first part of its death throes is an explosion which "expands" but fades out before the sound can collapse. Then, the sound of a whirring servo motor is slowed down over time, and finally, a "plain old" explosion is inserted at the end.

"I GOTTA HAVE DAT!"

Prince has always had a good ear, and for as long as he can remember, he has loved tinkering with sounds to create something truly unique. When he was young, he wore out an old reel-to-reel by forcing it to play at unnaturally slow speeds to create funny sounds. He would play 45s at 33 1/3 RPM to slow down the music on his favorite records to pick out cool musical licks. All this was in the era before digital sound even existed.

"When the Emu Emax (synthesizer) came out," remembers Prince, "I HAD to have one, and I wore it out messing around with samples I would record on a cassette recorder."

Designing sounds for a game such as Doom II requires far more intuition than book-learned skills. "I just turn off the logic, and start listening to sounds," says Prince. Rarely is he without his trusty DAT recorder, which allows him to pick up on-site sound bites at a 48 KHz sampling rate, recording sounds "so accurately, it's sorta scary."

One day, while wandering through a zoo, Prince came upon a panther that was growling in a bizarre way. "I couldn't believe it was so verbal...I swear to god it was trying to say something," he recalls. Armed with his DAT, he recorded the growls. Taking the recording into his studio, he began digitally playing with the other-worldly caterwaul. When he slowed down the sound, he discovered the perfect scream of pain for the large, fleshy Mancubus (the obese creature with plasma launcher arms). After auditioning the sound for the folks at id Software, they all decided the creature was a female

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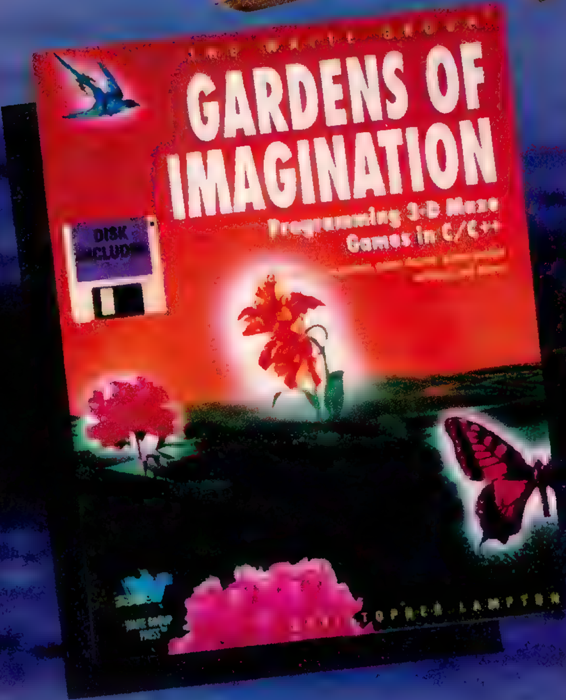
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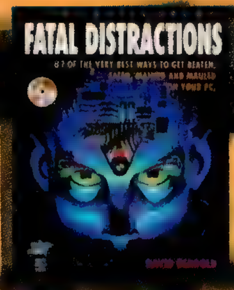
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because they swore they could hear "her" say "Come to Mama!"

Prince, who works exclusively on a PC decked out with two sound cards (one to play a CD in analog mode, the other to sample the CD sound), used **Turtle Beach**'s Wave for Windows program to build the sounds for Doom II. He pulled some sounds off of a sound effects CD, such as the "pick up item" sound, which is a gong sound reversed. He used a stock mule snort for the snarling of the imps. Other sounds he created himself, but most are a mixture of many different components.

TOOLS OF THE SOUND TRADE

In his line of work, the tools of the trade are echo, pitch shift, reverse, mix, compression and phasing. "Straight" sounds just have no real appeal, and the sounds of Doom needed to echo the texture of the game, the dark brooding feeling of being the only human in a sea of demons.

Applying echo to a sound changes its acoustics, making it seem as if the sound was captured in a cavernous hall with hard, reflective walls. Price applied echo to sounds in the later levels of Doom II, especially the "general activity" sounds (sounds not linked to a specific creature, but there to inform the player that he/she is not alone), to give the sense of caverns rich with danger.

Compression is the process of taking a sound and lowering its amplitude while still maintaining its essential sonic character. When recording sound, engineers have to be aware of what's known as the "Nyquest formula," which states that to accurately sample a sound, the sampling rate must be at least double the frequency of the highest frequency you wish to record.

In conversation with audiophiles like Prince, the term "sample" crops up continually. Just what is a sample? It is a stream of digital data that represents a sound wave. This data is pumped through a sound board's digital-to-analog converter to convert the bits into electrical signals that can be heard through your speakers. When you hear terms like "sampling rate" tossed around, it refers to the resolution of the sample. When you are recording sound digitally, the recording device makes a snapshot of the sound wave at a particular instant in time. The higher the sampling rate, the closer together these snapshots occur (and the larger your sound file). An audio CD is recorded at a sampling rate of approximately 44 KHz. The sounds in Doom II were recorded at a sampling rate of just over 11 KHz.

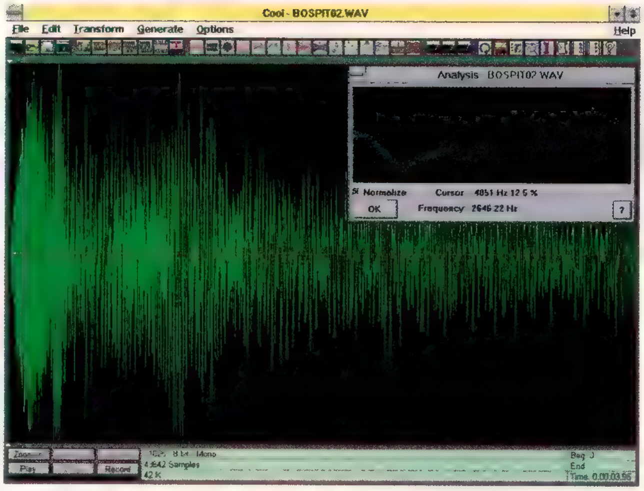
In Wolfenstein 3D, the sampling rate was only 7 KHz, which was just fine for the guttural shouts of "Mien Leiben!", but it would not have been acceptable for recording a woman's scream, since the frequency would be much higher. To make do, you would have to use a program such as Wave for Windows to compress a sound recorded at a higher sampling rate so that it would sound clean at the lower rate.

For the CyberDemon in Doom II, Prince screamed his guts out into a microphone. "You have to be careful to warm up before a real blood-curdling scream," warned Prince, "or you can just blow your voice right out. That happened to my brother-in-law."

Once the sounds were complete, it was up to id programmer Dave Taylor to integrate them into the game. After graduating from the University of Texas with a degree in electrical engineering, Taylor came to id after helping to create the IEEE Computer Science National Programming Contest. Instead of having the contestants go at it against each other with boring sort or data structures programming, the contestants scrambled to write a really large networked game under UNIX.

"It was a lot of fun and stained me indelibly with the need to get into game development. I went off to id...," said Taylor.

In the Doom series, Taylor programmed the status bar, the automap, and the integration of sound effects and music. After receiving the sounds from Prince, Taylor worked to attach the various effects to objects within the game. In Doom, a sound's volume is related to an object's distance from the player, and if the object isn't directly in front of or behind the player, then stereo separation comes into play. The sounds themselves are mono sounds, but the separation will change the left/right balance of the sound volume in relation to the position of the object.



WHAT'S THE FREQUENCY, BOBBY? Bobby Prince used Wave For Windows to edit and tweak the chthonian sounds of Doom II. This waveform is the sound of the demonic cube-spitter on the final level.

ON DECK AUDIO

As Doom II is running, it is constantly processing sound information. The sound code routines put together a small "packet" of sound data which should be played in the near future (perhaps in the next 1/20th of a second). That data is then run through the sound drivers, which send the data directly to the sound card. As the card is playing the sound, the program is already packaging the next chunk of sound data. Even when no sound effect is being played, data is still being spooled out to the sound card to eliminate those annoying pops when a sound card first begins to process sound data. Doom II can play up to eight digital sounds at the same time, but these are all mixed together via the sound code into a single unit of sound data.

Bobby Prince is proud of the effects he created in Doom II—I could tell that by the tone of his voice when we talked—but he is most proud of a sound in the final level of the game, the infamous "ejecting cube" room. Prince mixed together the sound of an airlock with that of a passing jet plane, added some low frequency rumble and tossed in some haunting echo effects. The result is the bone-chilling sound of a demonic projectile flying over your head.

Prince did elaborate on some other mysteries on this, his favorite level. The satanic-sounding chanting is actually id programmer John Romero, his voice reversed and modulated, remarking on something that has to do with a head on a stake. What, exactly, is he saying? That's a mystery for you hackers and novice sound engineers out there to discover.

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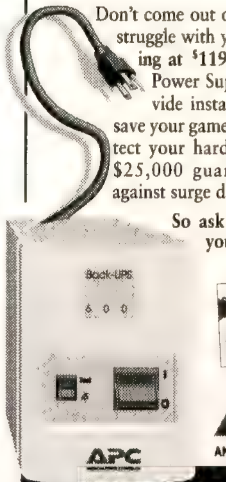

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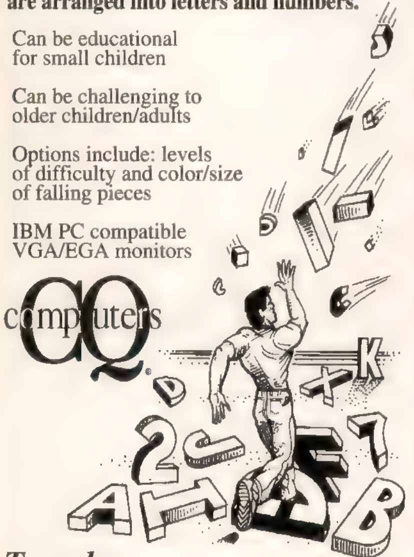

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A Field Guide To CD-ROM Drive Connections

CGW's Technical Editor Does The CD-ROM Interface Shuffle

by Mike Weksler

HERE'S SOMETHING THAT NEVER CEASES TO AMAZE ME: THE NUMBER OF VARIATIONS OF CD-ROM drive connections. Each CD-ROM seems to have its own unique way of plugging into your system. It's enough to drive you nuts! Some of these connections are proprietary, like those on Panasonic/Matsushita drives, which use the Panasonic interface. There are others that use a competitors' interface, like the Teac CD-55A drive, which also uses Panasonic's interface. But wait, there's more! Some have SCSI, Mitsumi, Sony, and even IDE connections. Hopefully, this "standard war" will soon be reduced to a battle between IDE (or Enhanced IDE) and SCSI, but for now, we've got yet another source of hardware headaches in games.

If you've purchased a CD-ROM drive in a multimedia upgrade kit, you can stop right here. The parts of most kits are more or less matched to give you (believe it or not) the least amount of trouble when compared to picking and choosing parts yourself. But what happens when you've been lustfully eyeballing that glistening, quad speed CD-ROM on the shelf? Looks cool, huh? Throughput of 600kb/s—man, this thing will cook! Hmmmm, how are you gonna hook it up? Do you have a sound card that's "CD-ROM compatible" and do you know which CD-ROM drives it supports? Do you already have a SCSI host adapter in your machine? Do you even have an extra bus slot for a stand-alone proprietary CD-ROM interface card? If you do have a sound card with some type of CD-ROM interface, or an existing SCSI host, you can save yourself some money (sometimes in the area of a C-note), by forgoing those CD-ROM drives that come with an "adapter kit." Otherwise, you can choose to plug the CD into a stand-alone card and free your sound card up for future upgrades without worrying about what CD-ROM drive it supports. Let's try to further clarify this befuddling issue by looking at a few possible CD-ROM scenarios.

POSSIBLE UPGRADE PATHS

Scenario 1: You've got a sound card with a Panasonic CD-ROM interface and you want a quad speed CD-ROM. Currently, the only quad speed that has a Panasonic interface is the TEAC quad speed. If you've got a SOUND BLASTER PRO, SOUND BLASTER 16, or AWE-32 (all of which have a Panasonic interface), this drive is worth a serious look.

Scenario 2: You've got a "Multi CD" sound card such as the SOUND BLASTER 16 MULTI CD, with a Mitsumi, Sony, Panasonic, maybe even an IDE interface bristling off the end of it. If this is the case, several hardware companies make double speed CD-ROMs that hook up to these types of sound cards with little or no effort. Unless you run a separate SCSI card, the TEAC (which plugs into the Panasonic interface) is your best bet for a quad speed until another company makes a quad speed with one of the other interfaces on it.

Scenario 3: You've got a sound card with a SCSI interface like a SOUND BLASTER 16 SCSI-2 card. This baby has an Adaptec SCSI-2 interface right on the card, and it will work well with any SCSI-compatible quad speed CD-ROM. However, you may encounter some problems if you already have another SCSI bus in your machine, like a SCSI hard drive controller. If you can stomach a little TSR shuffling, and know where to get a SCSI ribbon cable with enough connections on it, you may wish to sling that new quad speed SCSI CD-ROM right onto your SCSI hard drive controller. That way, you won't have to worry about IRQ, bus slot, or CD-ROM issues when you buy your next sound card.

Scenario 4: You don't have a sound card, but you want to play CD-ROM games. (Yes, rare, I know, but I'm trying to cover all the bases.) This one is easy. If you've got an IDE hard drive, you can use one of those proprietary adapter kits, or you could buy a separate SCSI controller and sling the CD-ROM drive onto that.

Scenario 5: You only have a SCSI controller in your machine. This is probably the easiest way to install a CD-ROM. In fact, I would highly recommend an external CD-ROM unit in this case. An external can be plugged into the back of the SCSI card (or onto your existing SCSI chain with Syquest drives, scanners, etc.) with an external SCSI cable, and with a little driver fiddling, you're set. Many of the new quad speed CDs, like those from Plextor,

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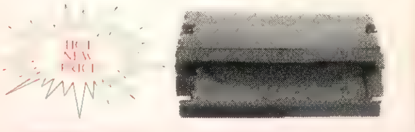

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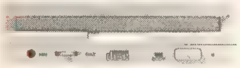

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Sim Town	Call
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Total Distortion	Call
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Mayo Clinic Fmly Hlth Bk	16
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Circle Reader Service #94

Toshiba, and NEC, are SCSI compatible.

Scenario 6: You just cracked the case on your new computer and found it supports the new Enhanced IDE standard. It's pretty cool with its 8 to 10MB/second throughput. (Western Digital says they can hit 13MB/second using multi-word DMA Mode 1, and they're shootin' for up to 20MB/second in the future, as described in their book "Enhanced IDE and You".) Not bad considering that even the fastest quad speed CD-ROM drives barely utilize the capability of their controllers, at a mere 600kb/s throughput. When new quad speed IDE CD-ROM drives hit the shelves, you'll probably want to look into one. Unfortunately, you'll still need to load up some kind of .SYS driver to initialize the I/O port and maybe the IRQ, and good 'ol MSCDEX to give it a drive letter. I was hoping that with EIDE we'd be able to plug in a CD-ROM drive and forget about it, like a hard drive, but that's not the case. I'm beginning to see IDE interfaces on sound cards; to wit, the Turtle Beach Tropez, and the Diamond 16-bit Diamond Sound wavetable upgradable sound card which ships with their quad speed multimedia kit. So far, I haven't been able to get my hands on an IDE CD-ROM drive to test out. I'll be sure to keep you posted.

By the way, EIDE can handle up to four EIDE or IDE peripherals, and it can handle two hard drives up to 8.4 gigabytes each! Additionally, EIDE is backwards compatible with older IDE technology, which is nice because IDE hard drives are much less expensive than SCSI hard drives—some as low as 50 cents per MB.

If you think these scenarios are confusing, wait until you try to connect the CD audio cable from your sound card to your CD-ROM drive. All the plugs conform to different standards as well. The only luck I've had is with the wires provided in good multimedia upgrade kits; otherwise, I have to modify the connectors.

CREATIVE LABS AWE-32 UPDATE

In my column on Creative Lab's AWE-32 [October, *CGW 123*], I mention a "General MIDI MPU-401 interface." What a difference a conjunction makes. It should have read "General MIDI interpreter and MPU-401 MIDI interface." The former refers to the AWEUTIL.EXE TSR program that, prior to third party AWE-32 drivers for games, caused a real headache for configuring General MIDI capable games. The latter is the Roland compatible MPU-401 MIDI interface that is implemented in hardware on the AWE-32. You can hook up a MIDI keyboard to the joystick port and attach a Wave Blaster-compatible daughtercard to the on-board feature connector and route MIDI data via the MPU-401 to either device—without any TSR programs. I set up and play with MIDI gear all the time and *I* missed it. My apologies for any confusion the above omission may have caused.

While I'm on the subject, Creative Labs announced the AWE-32 Value Edition, which has fewer features (no WaveBlaster connector) and sells for $329.95. Additionally, they also announced that the Sound Font patch editor is shipping and will be included with future AWE-32 and AWE-32 Lite products. We're seeing more games supporting the AWE-32's General MIDI wavetable synth directly (meaning that you don't have to load the AWEUTIL.EXE TSR program). Also, thanks to Jennifer Smith of Creative Labs Technical Services who wrote in explaining that CTMMSYS.SYS and CTSB16.SYS can be deleted from your CONFIG.SYS file to free up more conventional (or upper) memory, as they are only useful for Creative's DOS utilities. For more information, please call Creative Labs at (800) 998-1000.

MATROX MGA IMPRESSION PLUS UPDATE

You may have noticed in our video card survey this month that the Matrox MGA Impression Plus video card has less than stellar DOS performance. I found out recently, however, that there is a way to disable the card's on-board VGA capability. This will let you run a fast DOS VGA card in one slot and the MGA Impression Plus in another. This way, you'd be able to use a fast VGA card for today's DOS games, and use the MGA 3D acceleration for those games that support it directly.

Also, Matrox has just announced a lighter version of the card called the MGA Impression Lite which should hit the shelves by the time you're reading this. It doesn't have the VESA media channel for future daughtercard upgrades, but does have a suggested retail price of $369 for the PCI version and $399 for the VLB (the regular product is $449). Additionally, both versions of the card and the regular MGA Impression Plus will ship with a CD, the MGA 3D-SuperPack, which has 3D games including 47-Tek's fighting game, Sento, and Velocity's Spectre MGA. The CD also has 3D applications like Criterion's Renderware (used to create Sento), a demo of Rendermorphics' Reality Lab which allows you to create cool, 3D worlds, and a demo version of Caligari's Truespace, a Windows 3D rendering package. For more information, please call (800) 361-1408.

Under the Hood is both a column on technology and a Q&A support forum. Please send technical questions, comments, and solutions to Under The Hood, c/o Computer Gaming World, 130 Chaparral Ct., Suite 260, Anaheim Hills, CA 92808, or at any of our e-mail addresses.

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CD-ROM Hardware

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Aztec 2X	$139
Mitsumi 2X	$139
Sony 2X	$149
NEC 3X-P	$349
NEC 3X-I	$389
NEC 3X-E	$439
Plextor 4X	$499
Cd-rom Int.	$12

SOUND Hardware

16 bit SdBl/MS win. comp. sound card	$83
16 bit SdBl Pro/Adlib comp. with AT bus Cd-rom int.	$109
5-watt speakers	$15
24-watt speakers	$39
Deluxe speakers with volume, treble, bass control + much more	$99

Software

Doom II	$51
X-com	$45
Hexx	$39
Tie F.	$55
Sup . . . Hoboken	$45
Zephyr	$55
Menzoberranzan	$51
Warcraft: Orcs	$55
Serf C.	$45
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THE SCORE

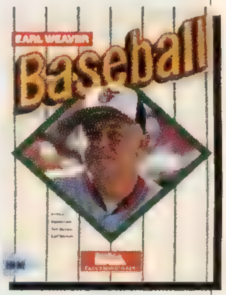
Welcome to the Cooperstown of Computer Games.
Here, raised upon pedestals, you'll find the games that broke the records,
established the benchmarks, and held gamers in delighted trances for hours untold.

CGW HALL OF FAME

The Bard's Tale (Electronic Arts, 1985)
Battle Chess (Interplay Productions, 1988)
Chessmaster (The Software Toolworks, 1986)
Civilization (MicroProse, 1991)
Dungeon Master (FTL Software, 1987)
Earl Weaver Baseball (Electronic Arts, 1986)
Empire (Interstel, 1978)
F-19 Stealth Fighter (MicroProse, 1988)
Gettysburg: The Turning Point (SSI, 1986)
Gunship (MicroProse, 1989)
Harpoon (Three-Sixty Pacific, 1989)
Kampfgruppe (Strategic Simulations, 1985)
King's Quest V (Sierra On-Line, 1990)
Lemmings (Psygnosis, 1991)
M-1 Tank Platoon (MicroProse, 1989)
Mech Brigade (Strategic Simulations, 1985)
Might & Magic (New World Computing, 1986)
M.U.L.E. (Electronic Arts, 1983)
Pirates (MicroProse, 1987)
Railroad Tycoon (MicroProse, 1990)
Red Baron (Dynamix, 1990)
SimCity (Maxis, 1987)
Starflight (Electronic Arts, 1986)
The Secret of Monkey Island (LucasArts, 1990)
Their Finest Hour (LucasArts, 1989)
Ultima III (Origin Systems, 1983)
Ultima IV (Origin Systems, 1985)
Ultima VI (Origin Systems, 1990)
War in Russia (Strategic Simulations, 1984)
Wasteland (Interplay Productions, 1986)
Wing Commander I & II (Origin Systems, 1990-91)
Wizardry (Sir-Tech Software, 1981)
Zork (Infocom, 1981)

H.O.F. HIGHLIGHTS

EARL WEAVER BASEBALL
ELECTRONIC ARTS, 1986



In its original form, Earl Weaver Baseball was the quintessential sports game. It offered reasonable statistical accuracy, and was the first baseball game to use a physical model as opposed to a strictly statistical model in resolving plays. It featured both an action and a management mode, allowed complete flexibility in drafting and editing players, and was the first game to allow customization of stadiums and team uniforms. For several years, it was the only game in town. Unfortunately, the sequel to the original game was a boondoggle that disappointed many fans. Still, the original Earl Weaver Baseball was a watermark design in sports simulations that raised the entire genre with its tide. Its spirit may still live on in Dynamix' Front Page Sports: Baseball.

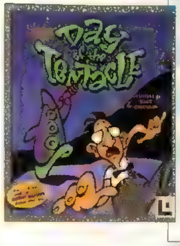
EMPIRE
INTERSTEL, 1978

EMPIRE
Interstel

Originally appearing on mainframe computers in the late '70s, Walter Bright's game of planetary conquest mixed exploration and strategy with a simple economic system for unit construction. The game was revamped for 8-bit personal computers in the '80s by Mark Baldwin, who added a new interface and some new unit types. Before Sid Meier's Civilization came along, Empire held the Most Addictive Game crown by virtue of its simple mechanics, deep game play, and unending replayability. The game was further revamped in Empire Deluxe, which added a fresh gleam to the graphics, improved interface mechanics, and enhanced multiplayer options.

THE SCORE

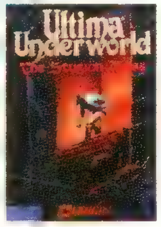
TOP ADVENTURE GAMES



	GAME	COMPANY	SCORE
1	Day of the Tentacle	LucasArts	9.92
2	Monkey Island 2: Le Chuck's Revenge	LucasArts	9.83
3	Indiana Jones: Fate of Atlantis	LucasArts	9.79
4	Quest for Glory III	Sierra	9.56
5	Sherlock Holmes CD I	Viacom	9.55
6	Gabriel Knight	Sierra	9.42
7	Star Control II	Accolade	9.33
8	Sam & Max Hit The Road	LucasArts	9.30
9	The Seventh Guest	Virgin	9.25
10	Lost Files of Sherlock Holmes	Electronic Arts	9.20

TOP ROLE PLAYING GAMES

	GAME	COMPANY	SCORE
1	Ultima Underworld	Origin	10.12
2	Betrayal at Krondor	Dynamix	9.50
3	Ultima Underworld II	Origin	9.42
4	Might & Magic III	New World Computing	9.39
5	Might & Magic: Darkside of Xeen	New World Computing	9.37
6	Eye of the Beholder II	SSI	9.34
7	Ultima VII	Origin	9.25
8	Lands of Lore	Virgin	9.25
9	Ultima VII: Part Two Serpent Isle	Origin	9.08
10	Wizardry VII: Crusaders of Savant	Sir-Tech	8.97



TOP SIMULATION GAMES

	GAME	COMPANY	SCORE
1	Falcon 3.0	Spectrum HoloByte	9.52
2	Indy Car Racing	Virgin/Papyrus	9.43
3	Aces of the Pacific	Dynamix	9.38
4	World Circuit	MicroProse	9.36
5	Fleet Defender	MicroProse	9.29
6	Comanche: Maximum Overkill	NovaLogic	9.27
7	Hornet	Spectrum Holobyte	9.12
8	Stunt Island	Disney	9.00
9	Aces over Europe	Dynamix	8.80
10	F-15 Strike Eagle III	MicroProse	8.65

TOP STRATEGY GAMES

	GAME	COMPANY	SCORE
1	X-COM	MicroProse	10.35
2	Master of Orion	MicroProse	10.27
3	Warlords II	SSG	10.01
4	Solitaire's Journey	QQP	9.97
5	Dune II	Virgin	9.82
6	Sim City 2000	Maxis	9.72
7	Conquered Kingdoms	QQP	9.53
8	The Grandest Fleet	QQP	9.36
9	Chessmaster 3000	Software Toolworks	9.32
10	Incredible Toons	Dynamix	9.16

READER POLL #123

TOP 100 GAMES

	GAME	COMPANY	TYPE	SCORE
✱1	TIE Fighter	LucasArts	AC	10.40
✱2	X-COM	MicroProse	ST	10.35
✱3	Links 386 Pro	Access	SP	10.33
4	Master of Orion	MicroProse	ST	10.27
5	Doom	Id Software	AC	10.24
✱6	Ultima Underworld	Origin	RP	10.12
7	Warlords II	SSG	ST	10.01
8	Solitaire's Journey	QQP	ST	9.97
✱9	Day of the Tentacle	LucasArts	AD	9.92
10	Monkey Island 2: Le Chuck's Revenge	LucasArts	AD	9.83
11	Dune II	Virgin	ST	9.82
12	Indiana Jones: Fate of Atlantis	LucasArts	AD	9.79
13	Sim City 2000	Maxis	ST	9.72
✱14	Carriers at War Construction Kit	SSG	WG	9.68
15	Front Page Sports Football Pro	Dynamix	SP	9.64
16	X-Wing	LucasArts	AC	9.60
17	V for Victory: Market Garden	Three-Sixty Pacific	WG	9.58
18	Quest for Glory III	Sierra	AD,RP	9.56
19	Sherlock Holmes CD I	Viacom	AD	9.55
	Wolfenstein 3-D	Id Software	AC	9.55
21	Conquered Kingdoms	QQP	ST	9.53
22	V for Victory: Velikiye Luki	Three-Sixty Pacific	WG	9.52
✱	Falcon 3.0	Spectrum HoloByte	SI	9.52
24	Betrayal at Krondor	Dynamix	RP	9.50
	NHLPA Hockey	Electronic Arts	SP	9.50
26	War in Russia	SSI	WG	9.44
27	Indy Car Racing	Virgin/Papyrus	SI	9.43
28	Ultima Underworld II	Origin	RP	9.42
	Gabriel Knight	Sierra	AD	9.42
30	Might & Magic III	New World Computing	RP	9.39
31	Aces of the Pacific	Dynamix	SI	9.38
32	Might & Magic: Darkside of Xeen	New World Computing	RP	9.37
33	The Grandest Fleet	QQP	ST	9.36
	World Circuit	MicroProse	SI	9.36
35	Pacific War	SSI	WG	9.34
	Eye of the Beholder II	SSI	RP	9.34
	Might & Magic: Clouds of Xeen	New World Computing	RP	9.34
38	Star Control II	Accolade	AD,AC	9.33
39	Chessmaster 3000	Software Toolworks	ST	9.32
40	Sam & Max Hit The Road	LucasArts	AD	9.30
41	Fleet Defender	MicroProse	SI	9.29
42	Comanche: Maximum Overkill	NovaLogic	SI	9.27
	Jack Nicklaus Signature Golf	Accolade	SP	9.27
44	V for Victory: Utah Beach	Three-Sixty Pacific	WG	9.26
45	Lands of Lore	Virgin	RP	9.25
	The Seventh Guest	Virgin	AD	9.25
	Ultima VII	Origin	RP	9.25
48	V for Victory: Gold Juno Sword	Three-Sixty Pacific	WG	9.24
49	Lost Files of Sherlock Holmes	Electronic Arts	AD	9.20
50	Privateer	Origin	AC	9.19

TOP WARGAMES

	GAME	COMPANY	SCORE
1	Carriers at War Construction Kit	SSG	9.68
2	V for Victory: Market Garden	Three-Sixty Pacific	9.58
3	V for Victory: Velikiye Luki	Three-Sixty Pacific	9.52
4	War in Russia	SSI	9.44
5	Pacific War	SSI	9.34
6	V for Victory: Utah Beach	Three-Sixty Pacific	9.26
7	V for Victory: Gold Juno Sword	Three-Sixty Pacific	9.24
8	Tanks	SSI	9.12
9	Clash of Steel	SSI	9.01
10	Carriers At War	SSG	8.97

TOP ACTION GAMES

	GAME	COMPANY	SCORE
1	TIE Fighter	LucasArts	10.40
2	Doom	Id Software	10.24
3	X-Wing	LucasArts	9.60
4	Wolfenstein 3-D	Id Software	9.55
5	Privateer	Origin	9.19
6	Tetris Classic	Spectrum HoloByte	9.14
7	Out of this World	Interplay	8.57
8	The Horde	Crystal Dynamics	8.50
9	Prince of Persia 2	Broderbund	8.49
10	The Lost Vikings	Interplay	8.46

TOP SPORTS GAMES

	GAME	COMPANY	SCORE
1	Links 386 Pro	Access	10.33
2	Front Page Sports Football Pro	Dynamix	9.64
3	NHLPA Hockey	Electronic Arts	9.50
4	Jack Nicklaus Signature Golf	Accolade	9.27
5	Hardball III	Accolade	9.16
6	Tony La Russa Baseball II	SSI	8.78
7	Wayne Gretzky Hockey III	Bethesda	8.30
8	MicroLeague Baseball 4	MicroLeague	8.23
9	All American College Football	Micro Sports	7.98
10	Mike Ditka Ultimate Football	Accolade	7.97

Vote!

You've read our take on the latest games, now here's a chance to see what your fellow gamers think. The CGW Top 100 is a monthly tally of game ratings provided by our readers via the CGW Poll ballot found in each issue. Approximately 50 games are rated each month, and the results are added to the aggregate results from past months. This historical database serves as a terrific reference for what you, the gamers, feel are the best plays in gaming.

51	King's Quest VI: Heir Today...	Sierra	AD	9.17
52	Incredible Toons	Dynamix	ST	9.16
	Hardball III	Accolade	SP	9.16
54	Tetris Classic	Spectrum HoloByte	AC	9.14
55	Hong Kong Mahjong Pro	Electronic Arts	ST	9.13
56	Tanks	SSI	WG	9.12
	Hornet	Spectrum HoloByte	SI	9.12
58	The Castle of Dr. Brain	Sierra	AD	9.11
59	The Dagger of Amon Ra	Sierra	AD	9.09
60	Merchant Prince	QQP	ST	9.08
	Ultima VII: Part Two Serpent Isle	Origin	RP	9.08
62	Syndicate	Electronic Arts	ST,AC	9.07
63	Les Manly in: Lost in L.A.	Accolade	AD	9.06
64	Quest for Glory I (VGA)	Sierra	AD,RP	9.05
65	Eric the Unready	Legend	AD	9.04
	Empire Deluxe	New World Computing	ST	9.04
	Conquests of the Longbow	Sierra	AD	9.04
68	Clash of Steel	SSI	WG	9.01
69	Stunt Island	Disney	SI	9.00
	Battles of Destiny	QQP	ST	9.00
	VGA Planets	Tim Wisseman	ST	9.00
72	Wizardry VII: Crusaders of Savant	Sir-Tech	RP	8.97
	Serf City	SSI	ST	8.97
	Carriers At War	SSG	WG	8.97
75	Freddy Pharkas Frontier Pharmacist	Sierra	AD	8.96
76	Alone in the Dark	I-Motion	AD	8.95
77	The Incredible Machine	Dynamix	ST	8.92
78	The Island of Dr. Brain	Sierra	ST	8.91
79	Myst	Broderbund	AD	8.85
80	Carriers at War II	SSG	WG	8.82
81	Arena: The Elder Scrolls	Bethesda	RP	8.81
	Spellcasting 301: Spring Break	Legend	AD	8.81
83	Rex Nebular	MicroProse	AD	8.80
	Aces Over Europe	Dynamix	SI	8.80
85	Harpoon II	Three-Sixty Pacific	WG	8.78
	Tony La Russa Baseball II	SSI	SP	8.78
	Populous II	Electronic Arts	ST	8.78
	Hoyle Book of Games, Vol. 3	Sierra	ST	8.78
89	Kasparov's Gambit	Electronic Arts	ST	8.75
90	Genghis Khan II	Koei	WG	8.74
	Tigers on the Prowl	HPS Simulations	WG	8.74
	Veil of Darkness	SSI	RP	8.74
	Dracula Unleashed	Viacom	AD	8.74
94	Gateway	Legend	AD	8.72
95	F-15 Strike Eagle III	MicroProse	SI	8.65
96	MiG-29	Spectrum HoloByte	SI	8.64
	Great Naval Battles	SSI	WG,ST	8.64
98	Amazon	Access	AD	8.62
99	Space Quest V: Mutation	Sierra	AD	8.60
100	High Command	Three-Sixty Pacific	WG	8.58

Games on unnumbered lines have scores equal to the line above. ✱ = Top game of type. Dark Teal = New Game, AD = Adventure, RP = Role Playing, SI = Simulation, ST = Strategy, WG = Wargame, AC = Action, SP = Sports

The Computer Gaming World Poll

A MONTHLY SURVEY OF THE READERS OF COMPUTER GAMING WORLD

PATCHES

Computer game programs have grown so massive and the number of hardware configurations has become so huge that incompatibilities and glitches are frustratingly common. Software fixes, or "patches," for buggy programs have become a necessary evil until we reach the golden age of standardized platforms and bug-free programs.

These patches can usually be downloaded from most major networks (CompuServe, GEnie, ZiffNet), but can also be obtained from individual software publisher's own BBSs or direct from the publisher with proof of purchase. Red indicates new files.

Aide de Camp V1.15: Uses 70 KB less RAM and has several interface modifications. 7/25/94

Archon Ultra V1.1a Update: For those with V1.1, cleans up modem difficulties. 8/16/94

Arena Upgrade V1.06: Latest version of Bethesda's role-playing game. 8/11/94

Battles of the South Pacific Upgrade: Latest patch for QQP's WWII naval strategy qame. 5/24/94

Cactus League Pro Basketball Update: Corrects stats of 70-71 season disk. 6/23/94

Chessmaster 4000 Turbo v1.04: Newest upgrade for Mindscape's chess program. 6/28/94

Comanche Joystick Drivers: Adds Flightstick Pro support to Nova Logic's helicopter simulation. 5/24/94

D-Day Patch: Includes missing text from game manual. 7/8/94

Detroit Patch 2.1: Upgrades this Impressions game to latest version. Consult the text file for info on transferring saved games to the new version. 8/11/94

Disney Windows Patch: Contains Windows drivers and icons for Disney DOS programs. 7/28/94

Empire Deluxe V1.1 Mac: Latest version of New World's strategy game for Mac gamers. The play-by-mail feature has been cleaned up significantly. 6/1/94

Falcon 3.0 V3.05: New Upgrade for floppy users of Falcon equivalent to the new Falcon CD release. (See also MiG-29 and Hornet upgrades below.) 9/29/94

Fleet Defender V1.2 Upgrade: Latest version of MicroProse's flight sim. Adds 41 new features. 5/17/94

Global Domination Update: Fixes modem play bugs and replaces Bismarck with Hitler, for those politically incorrect wargamers. 8/24/94

Great Naval Battles v1.1 Upgrade: Fixes several problems in SSI's simulation of naval warfare. 6/24/94

Hornet V1.02: Upgrades floppy owners, equivalent to Hornet included with Falcon Gold CD. 9/24/94

Indianapolis Motor Speedway: Expansion Pack: Improves AI and cleans up Indianapolis track only. 6/23/94.

Jack Nicklaus Signature Edition Update: Removes the copy protection so that the code wheel need no longer be used. 8/11/94

Legend of Kyrandia, Book 2, 1.04 Update: Fixes lock-up problems on faster machines. 8/29/94

Lode Runner Windows Upgrade V1.02: Corrects problems listed in the Readme file of the initial Windows release. 10/7/94

Lords of the Realm Patch: Allows for modem play in Impressions' new medieval game. 10/3/94

M4 for Windows V1.04: Latest upgrade fixes sound problems, especially with Media Vision cards. 7/15/94

Master of Magic V1.01: Latest version of MicroProse strategy/magic game, with numerous fixes. 10/6/94

Megarace v1.1 Upgrade: Solves Sound Blaster difficulties. 6/28/94

MicroProse Sound Drivers: New AdLib sound drivers for many older games which had problems running with 486 and Pentium machines. 4/7/94

MiG-29 V1.04: Upgrades floppy owners, equivalent to MiG-29 version included with Falcon Gold CD release. 9/24/94

Outpost V1.1: Fixes for many of the problems of Sierra's science-fiction title. 10/3/94

1942 Pacific Air War: Latest fixes including joystick enhancements. 7/8/94

Pacific War V1.1 Update: The official update from SSI, this will *not* work with the Gary Grigsby "X" versions available on-line. 8/10/94

Pacific Strike V1.19: Contains 9 fixes for Origin's flight sim. 5/27/94

Prophecy Patch: Solves graphics problems with faster systems. 6/15/94

The 7th Guest 1.30 Update: Lowers memory requirements to 450K, adds vesa support and more sound card drivers. 8/1/94.

Spectre VR Update: Newest version including latest editing files. 7/28/94

Tigers on the Prowl V 1.14: Offers an improved interface, better targeting and weapon selection for the AI, adjustable game length and victory areas, new battalion chain of command rules, secondary ammo load changes and artillery modifications, among others. 10/09/94

Tony La Russa Baseball 2 Patch: Fixes stadium lockups. 5/3/94

Tony La Russa Baseball 2 CD-ROM V1.3: Latest version with numerous fixes. 7/21/94

U-Boat V1.5 Update: Latest version of Deadly Games' submarine game—*Mac only.* 8/11/94

Ultimate Football V1.2 Update: Fixes the 2-player mouse bug, among other problems, and adds new playbooks and more roster updates. Requires PKunzip 2.04 to decompress. 9/14/94

UFO V1.3 Update: Fixes problem of captured Alien leaders dying enroute to X-COM base. *This patch is only for the import version, not the American X-COM release.* 9/15/94

Warlords II Update: Latest version for those who don't have the construction kit. 6/17/94.

Warlords II Copy Utility: Allows you to copy armies and cities between Warlords II scenarios. Includes documentation. 7/4/94

X-Wing Enhancement: This TSR allows use of extra Thrustmaster buttons. 6/2/94

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"Wing Commander Armada is a totally awesome game, no doubt about that. Check it out sooner rather than later." - Gamestar Magazine

"The graphics and sound effects in Armada are AWESOME!! I was completely blown away with the explosions, from the sound of the hits to the debris flying through space! Simply fantastic!!" - Jedd Hansen - online gamer

CD ROM

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